

agro**riches**

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GHANA TODAY

Seed Evaluation Program
Aims to Improve Rice
Varieties

NOTRE CHRONIQUE

La ressource naturelle poly-
valente

INSIGHT AFRICA

Maize Processing and Manu-
facturing in West Africa

IRRIGATION
REVOLUTION
EXCLUSIVE INSIGHTS

ING. RICHARD OPPONG-BOATENG - AG. CEO, GIDA

JUNE 2023





TIAST Group, originating from China has been in existence for over 30 years and has extended its services to West Africa with the sole purpose of adding value to the agriculture value chain and promoting the worth of the agricultural industry in Ghana. Through localization and standardization, we are devoted to adding value to the agricultural chain and boosting the agricultural industry's worth in all African countries. Our business scope includes designing, manufacturing, installation and maintenance of agricultural processing machinery. These machines are designed to process a variety of agricultural goods, including tubers like cassava and sweet potato, etc. rubber processing, fibre extraction and processing from sisal and pineapple leaf, and agricultural machinery for planting, harvesting, and other tasks. We also provide financial leasing for our agricultural processing factories through our partnership with Banks which supports up to 70-80% of the total cost of the entire project. This lease is spread out in a 5-year term of payment which is convenient after the project starts running.

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OUR AGRICULTURAL INDUSTRIALIZATION AGENDA IS AIMED AT PARTNERING WITH FARMERS AND INTERESTED PARTIES TO ADD VALUE TO THE AGRICULTURAL VALUE CHAIN.

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Diversifying to Shea nut crop in Ghana

Vitellaria paradoxa is commonly known as the shea tree. It is the only species in the vitellaria family and is indigenous to Africa. In recent years, the Shea tree has gained importance as an economic crop because of the heavy demand for its butter both locally and internationally.

Shea is produced in several west African countries, including Nigeria, Mali, Burkina Faso, Ghana, Cote d'Ivoire, Benin, and Togo. Among these countries, Ghana stands out as the largest exporter of unrefined shea butter and has the most advanced shea processing sector.

Shea, primarily produced by women in the northern and savannah areas of Ghana, is the main edible oil for the people. With 94 million shea trees, Ghana is the largest exporter of shea butter, producing 60,000 metric tonnes of shea nuts annually, according to the Global Shea Alliance.

Despite its advanced processing sector, Ghana can produce more shea butter than Nigeria and Mali, making it a lucrative business for investors. Diversifying with shea crops can generate more jobs and income for the people.

There is a huge, growing market for shea butter in the European cosmetic market, which Ghana can explore. Shea butter is used mainly in skincare and haircare products because of its properties.

Industry growth in the sector is fueled by increased shea butter awareness and natural cosmetic demand.

According to the Global Shea Alliance, the majority (85%) of processed shea butter goes to the food industry and the rest to care products, but if Ghana invests more in processing factories, it can produce more to go beyond domestic use and cater for foreign markets in the cosmetic industry.

The shea tree also has a great untapped capacity for producing copious amounts of sap that can constitute an important source of raw material for the gum and rubber industries, which Ghana can thrive in if it invests in the shea trees. The shea industry has the potential to be one of Ghana's leading contributors to the country's GDP.



by Jessica Meledi



Amaranth

By Prince Opoku Dogbey

Amaranth, scientifically known as *Amaranthus*, is a lesser-known yet highly nutritious crop with a fascinating history and an array of health benefits. Originating from Central America, this ancient crop has been cultivated for thousands of years and was highly regarded by the Aztecs and Incas for its exceptional nutritional value.

DESCRIPTION

Amaranth is a versatile crop that belongs to the *Amaranthaceae* family. It encompasses various species, including *Amaranthus caudatus* (known as love-lies-bleeding or velvet flower), *Amaranthus cruentus*, and *Amaranthus hypochondriacus*. The plants display vibrant, elongated flowers and can reach heights of up to six feet. Amaranth is grown for both its nutritious leaves and highly nutritious seeds, which resemble small grains.

Health Benefits

Nutritional Powerhouse

Amaranth is a nutritional powerhouse, offering a rich source of essential nutrients. It is abundant in protein, containing all the essential amino acids needed by the human body. Additionally, it is a good source of dietary fiber, vitamins (such as A, C, and E), and minerals (including iron, calcium, and magnesium).

Antioxidant Properties

Amaranth possesses significant antioxidant properties due to its high content of phenolic compounds, such as rutin and quercetin. These antioxidants help protect the body against free radicals, reducing the risk of chronic diseases and supporting overall health.

Incorporating amaranth into one's diet can be done in various ways. The leaves can be cooked and used in salads, stir-fries, or soups, while the seeds can be popped like popcorn, ground into flour for baking, or used as a nutritious addition to cereals and smoothies.

Heart Health

Consuming amaranth can contribute to a healthy heart. It is a good source of potassium, which helps regulate blood pressure and maintain cardiovascular health. Furthermore, amaranth contains phytosterols, compounds that can help lower cholesterol levels and reduce the risk of heart disease.



Dawhenya: Seed Evaluation Program Aims to Improve Rice Varieties

By Prince Opoku Dogbey

Dawhenya Irrigation Scheme, nestled in the heart of the Ningo Prampram District, has emerged as one of Ghana's most promising centers for rice production.

Led by the Ghana Irrigation Development Authority with 215 farmers, rice cultivation has taken center stage, driving the scheme's growth and success.

Spanning a vast expanse, the Dawhenya Irrigation Scheme boasts a total potential area of 450 hectares.

Currently, 200 hectares have been developed, with a cropped area of 150 hectares dedicated to rice production.

In a recent discussion with Mr. Timothy Nuwordu, Principal Manager of scheme oversight at the Ghana Irrigation Development Authority, he shed light on the ambitious plans for the Dawhenya Irrigation Scheme.

According to him, the scheme is actively working towards becoming a pivotal seed production center in Ghana.

"We are doing this demonstration with KOPIA, one of our main developmental partners and the Council for Scientific and Industrial Research (CSIR). We are evaluating seeds and some yields.

"We want to see which one would give the best and the optimum yield to select," he said.

Underscoring this objective, the scheme is presently undertaking seed evaluation of various rice varieties, laying the foundation for improved crop quality and yield.

Speaking on the demand of rice in the country, he added, "As a country, we need 24,000 tons of seeds to meet our demand, but currently, we are doing around 11,000 to 12,000 tons."

In furtherance to his speech, he disclosed, "GIDA in partnership with KOPIA would develop 100 hectares of land, so before we go into seed production, we are evaluating the best one to select for the project."

However, amidst its success, the Dawhenya Irrigation Scheme faces challenges posed by encroachment activities, urbanization and production costs.

The encroachment threatens the scheme's ability to fully utilize its potential and poses a risk to its sustainable development.

Nigeria: Experts seek restoration of Nigeria's maize value chain

By Jessica Meledi

Nigeria, as a major maize producer in Africa, possesses immense potential for agricultural development.

Maize plays a vital role in the country's economy, serving as a staple food crop, livestock feed, and raw material for various industries.

However, to unlock the full potential of Nigeria's maize value chain, experts and stakeholders converged at the just concluded 5th Nigeria Maize Conference, organized by Bayer West-Central Africa, a multinational life science company, in collaboration with the Maize Association of Nigeria (MAAN).

The conference brought together farmers, industry experts, and government rep-

resentatives to address the challenges facing the maize value chain and how stakeholders can work together to improve productivity.

The conference, themed 'Much More Maize: Engaging Stakeholders for a Sustainable Maize Value Chain', served as a pivotal platform for exchanging knowledge, sharing experiences, and fostering partnerships to address the challenges and capitalize on the opportunities within the maize value chain.

Temitope Banjo, the Country Sales Manager of Bayer Nigeria Ltd., restated the conference's objective of bringing together industry stakeholders and fostering a sustainable and cooperative alliance to ensure a secure future.

He stated, "We remain committed to working closely with stakeholders, supporting the adoption of sustainable agricultural practices, promoting knowledge sharing, and fostering collaboration."

According to the organizer, the conference has provided crucial insights to empower farmers and stakeholders while emphasizing the importance of continuous learning and adaptation.

The Nigeria Maize Conference served as a hub of knowledge where participants gained valuable insights into the latest advancements, best practices, and technological innovations in maize production.



NITDA encourages smart farming

By Prince Opoku Dogbey



The Director-General of the National Information Technology Development Agency (NITDA), Kashifu Inuwa, has disclosed that emerging technologies in the agricultural sector will revolutionize agriculture.

He highlighted the pivotal role of smart farming, which combines data and computing technologies to improve the efficiency and predictability of agricultural operations.

He disclosed this at a symposium, titled "The Future of Smart Agriculture and the Role of Emerging Technologies in Achieving the SDGs," organized by the Federal University Dutsinma (FUDMA) in collaboration with the Islamic World Educational, Science and Cultural Organisation from Morocco.

The symposium aimed at encouraging the adoption of smart agriculture practices and showcased successful projects from the National Adopted Village for Smart Agriculture (NAVSA) program.

Inuwa, represented by Dr. Aminu Lawal, highlighted that agriculture, like many other sectors, has undergone a digital revolution.

He said every sector in the world has now entered the era of digital or smart farming, farming which focuses on collecting and analyzing data using computing technologies to make agricultural operations more efficient and predictable.

"There is a need to increase the production and profitability of farmers, increase the impact of agriculture intervention, attract youths and talents into agribusinesses, and use agriculture to diversify the economy. Digital technologies have the ability to change this narrative.

"Agriculture, if properly harnessed and technologies and innovations effectively introduced, the sector remains the number one sector for taking 100 million Nigerians out of poverty in 10 years and creating large well-paying jobs for Nigerian youths," he said.

"There is a need to increase the production and profitability of farmers"

Revitalizing Agriculture through Education

By Nana Ama Oforiwaa Antwi

We advocate for increased technical advancements in Ghana's agricultural industry and urge farmers to abandon some antiquated practices in favor of cutting-edge ones like precision farming and regenerative agriculture. We kindly request that farmers protect the soil and let it replenish its nutrients over the course of the year. We also request that farmers use more organic fertilizer in measured amounts and better, certified seeds.

All while demanding that they feed our population of 32.83 million and still counting, do they ever get a break?

Do we acknowledge them enough for their efforts in helping us survive in spite of the several challenges they encounter in ensuring our existence?

We demand fresh foods while grumbling about prices, but have we taken a second to ascertain whether we have educated our farmers enough to produce quality food while adhering to the modern practices we want?

Let's take a minute to acknowledge some challenges our farmers in Ghana face, ranging from changes in weather patterns to a lack of funds and adequate machinery. Even a ready market for their produce is another issue. Unfortunately, many farmers in rural areas are unaware of the transformative potential of regenerative agriculture and other modern techniques. They lack education on entrepreneurship and how to upscale their farms to indulge in commercial farming, which would improve their livelihoods.

Many are of the view that farmers are so bent on their ways, hence the reason they are adamant on letting go of their traditional methods.

However, the reason is that they barely understand the new terms and their benefits to their farms. Taking the issue of climate change as an example, most farmers are witnessing firsthand the troubling effects of climate change-the lack of their much-anticipated June/July rains or the heavy rainfalls that cause them to lose yields and destroy their farms-yet they lack an understanding of its causes.

Prioritizing farmer education will equip these farmers with the knowledge to adapt to changing weather patterns, understand the importance and benefits of modern practices and technological advancements, and embrace them to improve productivity and even protect their livelihoods.

In addition, let's encourage the formation of farming associations throughout the country and specifically in rural areas so as to serve as channels for education and training and ensure the spread of education and information among farmers effectively.

Also, organizing workshops for association heads will be an easier way to reach every farmer, as their heads will in turn teach and pass on the knowledge to their members.

This collaborative approach will create a positive ripple effect throughout the agricultural sector. It is time to take action and revitalize Ghana's agricultural sector through education to transform the agricultural landscape and promote productivity.



Automated Harvesting Robots

By Prince Opoku Dogbey



In the realm of modern agriculture, automated harvesting robots have emerged as game-changers, revolutionizing the way crops are harvested. These intelligent machines combine advanced technologies, such as computer vision, machine learning, and robotic arms, to streamline the labor-intensive task of crop harvesting. With their efficiency, precision, and potential to address labor shortages, automated harvesting robots are transforming the agricultural landscape.

Automated harvesting robots are designed to handle specific crops, such as strawberries, tomatoes, or lettuce, which traditionally require meticulous manual harvesting. These robots employ computer vision systems to identify ripe produce based on color, size, and other characteristics, ensuring accurate selection and reducing wastage.

One significant advantage of automated harvesting robots is their ability to address labor challenges faced by the agricultural industry. As manual labor availability becomes increasingly uncertain or costly, these robots provide a reliable and efficient alternative. They can operate 24/7 without fatigue or breaks, leading to faster harvesting cycles and increased productivity. Moreover, by relieving farmers of physically demanding tasks, these robots enable them to focus on other essential aspects of

farm management and decision-making.

The implementation of automated harvesting robots offers numerous benefits to the agricultural sector.

First and foremost, they improve harvesting speed and efficiency, resulting in reduced crop losses and enhanced overall productivity. By reducing reliance on manual labor, these robots help mitigate labor shortages and associated costs, ensuring a more reliable and sustainable workforce.

Additionally, automated harvesting robots enable farmers to optimize harvest timing, ensuring crops are picked at their peak ripeness for maximum flavor and nutritional value.

While automated harvesting robots have demonstrated their potential, ongoing research and development aim to enhance their capabilities further. Improvements in machine learning algorithms, sensor technologies, and robotic grippers are being explored to expand their applications to various crop types and challenging terrains.

In conclusion, automated harvesting robots are revolutionizing the agriculture industry's approach to crop harvesting.

SMART AGRICULTURE

By Prince Opoku Dogbey

In the era of rapid technological advancements, agriculture is undergoing a transformational change with the emergence of "The Digital Farmer." This concept represents the integration of cutting-edge technologies and data-driven solutions into traditional farming practices, revolutionizing the way farmers manage their crops, optimize resources, and enhance overall productivity. From precision farming to robotic automation, these innovations are shaping the future of agriculture.

The digital revolution in agriculture is powered by a range of technologies. Precision farming techniques, enabled by Global Positioning System (GPS) and Geographic Information System (GIS) technologies, allow farmers to precisely manage their fields, tailoring inputs like fertilizers and pesticides based on site-specific requirements. Soil sensors and remote sensing technologies provide real-time data on soil moisture, nutrient levels, and crop health, enabling farmers to make informed decisions and optimize resource allocation.

Moreover, the Internet of Things (IoT) has facilitated the development of smart farming systems, where interconnected devices collect and analyze data, enabling automated monitoring and control of farm operations. Drones equipped with cameras and sensors are used for crop monitoring, pest detection, and even crop spraying, reducing labor and enhancing efficiency. Automated irrigation systems ensure precise water application, conserving resources and minimizing water waste.

Artificial Intelligence (AI) and machine learning algorithms are playing a pivotal role in data analysis, helping farmers predict weather patterns, optimize planting schedules, and detect early signs of diseases or pest outbreaks. Farm management software applications enable farmers to streamline administrative tasks, track inventory, and manage finances more effectively.



Investing in Maize Processing and Manufacturing in West Africa

By Prince Opoku Dagbey

Inconsistent policies across the west African countries have crippled investments to meet productivity. Among these constraints, poor quality seeds are used and access to quality seeds is particularly a key determinant of recorded low maize in West Africa. Small scale farmers form majority of maize farmers in West Africa and most end up using obsolete equipment and poor-quality seeds with insufficient fertilizer due to lack of resources.

Government needs to establish strategic policies in the various countries to ensure money and resources is invested to increase the production of maize in west Africa currently. Another major investment also has to do with value added processing to boost exportation of corn in West Africa. This will help the West African countries compete with our leading maize producing countries to export the maize and gain more income.

In West Africa, the average maize supply is estimated at 30.46kg/capita in 2019, and the total annual maize production estimated to be 25.98 million metric tons in 2020 (FAO 2022).

Nigeria, Mali, Ghana, Burkina Faso and Benin are the top five producers representing 81.3% of the total production. The average west African countries' production over the last decade, 2011-2020 was 1,397,030.62 tons, with a maximum of 10,428,502.4 tons (Nigeria) and a minimum of 3,453.4 tons (Cabo Verde).

Despite the tremendous increase in maize production by 60% between 2011 and 2020 (FAO 2022), the observed maize yield is far below the potential yield of registered improved varieties. Reasons of low yield in West African Countries are diverse and include the use of inappropriate varieties such as poor soil fertility, climate-related stresses and impacts, poor management practices, the limited use of fertilizers and other agro-inputs, pests and diseases pressure. This situation is similar across low-and middle-income countries of West Africa.



Maize is one of the most estimated cereal crops worldwide and a key staple crop in sub-Saharan Africa, where more than 300 million people depend on it for their livelihoods.

Vegetables

The different colors in vegetables indicate the presence of various phytochemicals, antioxidants, and essential vitamins, each offering unique health benefits.



Banana Cake

Consuming banana cakes are a great source of natural sugars, such as glucose, fructose, and sucrose. These sugars provide a quick energy boost, making banana cake a suitable snack or dessert choice for an instant pick-me-up.



Ghana's Irrigation Revolution: Exclusive Insights

By Prince Opoku Dogbey

Ghana's journey towards transforming its agricultural sector and harnessing the power of irrigation has been marked by significant progress and a promising outlook.

In an exclusive interview with Ing. Richard Oppong-Boateng, the Acting Chief Executive Officer of the Ghana Irrigation Development Authority (GIDA), we gained insights into the remarkable strides made in irrigation development and water resource management for crop production in Ghana.

With a focus on enhancing agricultural productivity and empowering smallholder farmers, GIDA has been at the forefront of implementing irrigation schemes and fostering partnerships to unlock the country's vast agricultural potential.

Meeting the Challenge of Irrigation Development

GIDA's mandate as the sole institution tasked with regulating dam construction and water resource development for irrigation has led to significant progress over the past 50 years. With 191 irrigation schemes established throughout Ghana, crops such as rice, maize, and vegetables have flourished. Among the notable schemes are the Kpong, Bon-tanga, Weta, Tono, and Via irrigation schemes.

A Holistic Approach

GIDA's commitment extends beyond water resource management for crop production. The authority places equal emphasis on capacity building for farmers. Recognizing that irrigation schemes require continuous innovation, GIDA focuses on both the physical infrastructure, such as dams, and the soft components, including crop selection and farmers' skills enhancement.

Harnessing the Potential of Irrigation; KIS

The Kpong irrigation scheme, the largest in Ghana, has a vast area spanning 4,400 hectares. Within this expansive scheme, 2,400 hectares have been allocated specifically for rice cultivation, while another 2,000 hectares have been leased to Golden Exotics for their banana plantations. On the Kpong enclave, there are two distinct schemes known as the Kpong Irrigation Scheme and the Kpong Left Bank Irrigation Scheme. The scheme has over 3,500 farmers on 2,400 hectares and 5,000 workers on the 2,000 hectares dedicated for banana production. The direct jobs created are over 20,000 for smallholder farmers and indirect jobs of about 10,000.

Expanding Irrigation Opportunities

Despite the progress made, Ghana has only tapped into around 10 percent of its vast irrigation potential. With 1.8 million hectares of potential irrigation land, GIDA has taken the initiative to explore new opportunities through collaboration with the private sector. This approach enables the injection of capital and expertise into irrigation development, propelling further expansion.

Ing. Richard
Oppong-Boateng



Leveraging Water Resources

To maximize water resources, GIDA is exploring the untapped potential of the Volta Lake and exploring the use of ground water sources. By capturing and storing excess water during the rainy season, GIDA aims to alleviate the impact of dam spillage and ensure a sustainable water supply for irrigation during dry periods.

Rice Cultivation and Food Security

Rice cultivation stands as a prime example of the potential for growth. With a demand of 1.5 million metric tons annually and current production hovering around 600,000 metric tons, there exists a deficit of 900,000 metric tons. Unlocking the potential of inland valleys, which offer ideal conditions for rice cultivation, requires land development to clear vegetation barriers. GIDA believes that with government support in land development, smallholder farmers can significantly boost rice production.

Collaborating for Progress

To further accelerate progress, GIDA is about to sign a Memorandum of Understanding with private institutions like the Jospong Group of Companies. Per request to the Ministry of Food and Agriculture, GIDA will serve as the implementation/technical partner of the upcoming Ghana Rice Project; thereby, overseeing infrastructure design, construction, and site selection. Preliminary site identification and selection by GIDA technical team indicates that 300,000 ha of inland valley sites could be put under cultivation, with expected total yield of 900,000 tons a year per single cropping, representing an average yield of 3 tons per ha.

A Promising Outlook

With the agriculture sector proving to be a lucrative venture, the Acting CEO of GIDA encourages aspiring farmers not to fear the risks associated with agriculture. By leveraging irrigation development, water resource management, and collaborations with the private sector, Ghana is poised to unlock its agricultural potential, boost food security, and empower smallholder farmers.

In conclusion, GIDA's strategic initiatives, including irrigation development, capacity building, and partnerships, reflect Ghana's commitment to transform its agriculture.

“Preliminary site identification and selection by GIDA technical team indicates that 300,000 ha of inland valley sites could be put under cultivation.”

AMARANTH SALAD

By Mavis Essaba Mensah

This refreshing and nutritious amaranth salad offers a delightful combination of flavors and textures. The tender amaranth leaves, crisp salad greens, juicy cherry tomatoes, and tangy feta cheese create a vibrant and satisfying dish

INGREDIENTS

1 cup amaranth leaves, washed and chopped

1 cup mixed salad greens

1/2 cup cherry tomatoes, halved

1/4 cup cucumber, diced

1/4 cup red onion, thinly sliced

1/4 cup feta cheese, crumbled

2 tablespoons fresh lemon juice

2 tablespoons extra-virgin olive oil

1 tablespoon honey

Salt and pepper to taste

INSTRUCTIONS

Cook the amaranth leaves: Bring a pot of water to a boil and blanch the amaranth leaves for about 1-2 minutes until tender. Drain and rinse with cold water. Set aside.

Assemble the salad: In a large bowl, combine the cooked amaranth leaves, mixed salad greens, cherry tomatoes, cucumber, and red onion.

Prepare the dressing: In a small bowl, whisk together the fresh lemon juice, olive oil, honey, salt, and pepper until well combined.

Drizzle the dressing over the salad and toss gently

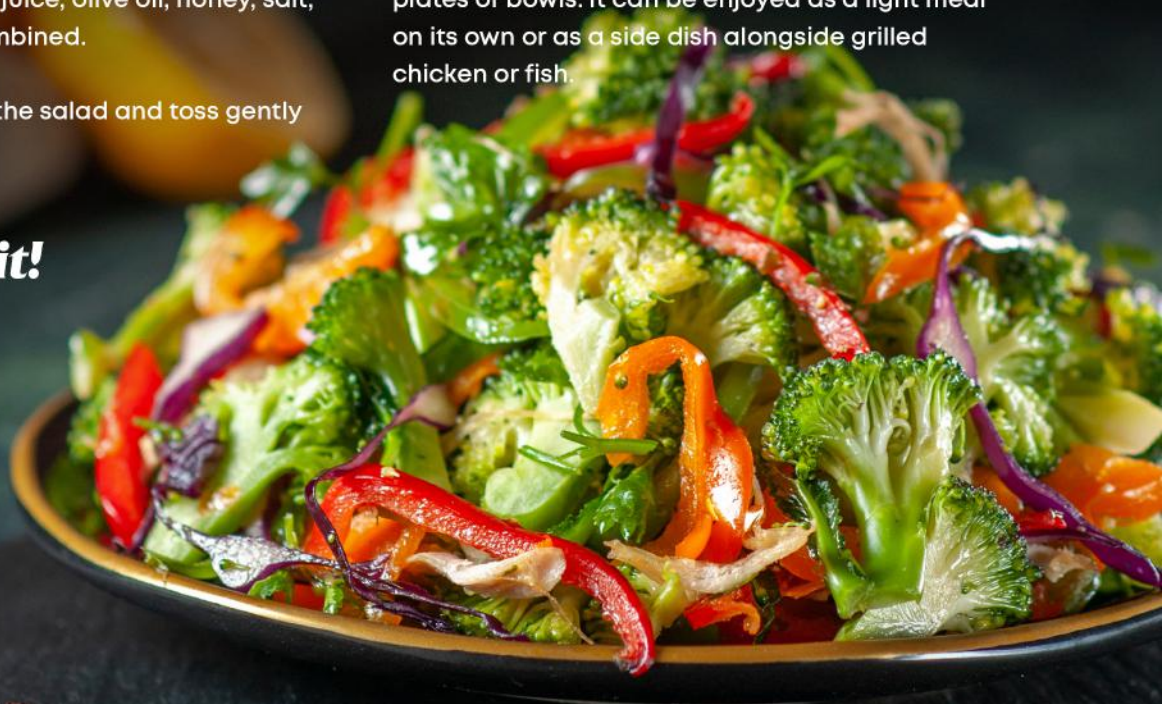
to coat all the ingredients.

Sprinkle the crumbled feta cheese on top of the salad.

Let the flavors meld: Allow the salad to sit for about 10 minutes before serving. This will allow the dressing to infuse the flavors.

Serve and enjoy: Transfer the salad to serving plates or bowls. It can be enjoyed as a light meal on its own or as a side dish alongside grilled chicken or fish.

Bon appétit!





“Erratic weather patterns, rising temperatures, and increased frequency of extreme events pose significant risks to crop production and food security.”

Nurturing Resilient Crops in the Face of Climate Change

By Obed Nyarko

The agricultural sector is facing unprecedented challenges due to the effects of climate change. Erratic weather patterns, rising temperatures, and increased frequency of extreme events pose significant risks to crop production and food security.

However, farmers and scientists worldwide are embracing innovative approaches to cultivate resilient crops that can withstand these changing conditions. This concept, known as "Green Harvest," aims to nurture and develop agricultural practices that ensure sustainable food production while mitigating the impact of climate change.

Green Harvest encompasses a range of strategies and technologies that help farmers adapt to the changing climate. One approach involves utilizing advanced breeding techniques to develop crop varieties with improved drought tolerance, disease resistance, and heat resistance. Scientists are also studying the genetic diversity of traditional crop varieties to identify traits that can enhance resilience. Furthermore, precision agriculture techniques, such as remote sensing and satellite imagery, enable farmers to monitor and manage their fields more effectively, optimizing resource use and minimizing environmental impact.

Additionally, sustainable farming practices like conservation agriculture, agroforestry, and water management techniques help improve soil health, reduce erosion, and enhance water efficiency. These practices promote biodiversity, sequester carbon, and enhance the overall resilience of agricultural systems. Farmers are also implementing innovative irrigation systems, such as drip irrigation and precision sprinklers, to reduce water waste and ensure efficient water distribution.

Furthermore, embracing agroecological approaches like crop rotation, intercropping, and integrated pest management can reduce the reliance on synthetic inputs while promoting natural pest control and soil fertility. These methods create more resilient agroecosystems that can adapt to changing conditions and minimize environmental degradation.

By adopting innovative techniques, farmers can enhance their productivity, minimize environmental damage, and secure food production for future generations. Embracing these strategies and promoting their widespread adoption is essential to build a sustainable and resilient agricultural system in the face of climate change.

DEAR WIFE TO BE

I weed, I plough, I till and sow,
Just to make you happy
I work tirelessly
sweat dripping down my face
yet I don't stop
I lift my shirt to wipe it off until
its soaking wet
Just to make you happy
I make sure you're fed
and your needs are met
I continue to sow and pray for
the rain
so I can afford a seat in the
train
to come see you
but what do you do?
you complain all day

“the fruits aren't fresh”
‘my hands aren't made to
stress”
That is all you say
you call my toils a bluff
you tell me to change my ways
leave me for days
and say it's my punishment for
my deeds when it doesn't rain
you take and take and leave me
drained
when would your lips be filled
with encouraging words for
me?
When would you smile at the
sight of me?
Oh dear wife to be.

— By Nana Ama Oforiwaa Antwi

Plant Tissue Culture: Living the future where nature and in- novation intertwine

By Jessica Meledi



In the face of modern agriculture and innovative technology, coupled with the rapid growing population and food insecurity, a ground-breaking technique such as plant tissue farming, is a huge game-changer which would help balance the odds in improving our crop yields and solving the issue of food insecurity.

I bet this may be your first-time hearing of the term, however, it may interest you to know this technique is no novice as it has been around for several decades since its introduction by German Botanist, Gottlieb Haberlandt, who published his seminal work; Cultural experiments with isolated plant cells in 1902, laying the foundation for others like Kenneth V. Thimann to follow.

Plant tissue culture, often referred to as micropropagation or in vitro cultivation, is a remarkable technology which involves the process of collecting healthy plant tissues, usually its shoots or buds, to grow in a monitored-controlled- laboratory and generate into a whole plant. This process does not only enable the generation of healthy disease-resistant crops, but also leads to the birth of several new varieties.

Plant tissue culture offers an unprecedented means of unlocking the intrinsic potential of plants. Through this process, scientists are able to propagate rare, endangered or valuable species which can generate into a whole plant.

Aside shoots and buds, other tiny fragments of plants such as leaves, stems can also be cultured under control conditions.

Our planet is a treasure trove of biodiversity, housing a multitude of plant species with untapped genetic potential. However, habitat destruction, climate change, and urbanization have placed many species at risk of extinction. Plant tissue culture emerges as a powerful tool for preserving endangered species and protecting genetic diversity which can safeguard plants against future threats.

Some interesting facts about crops grown this way is that, tissue crops can be grown at any time irrespective of the season and they also mature earlier than traditional crops which means the take less time to be harvest ready, giving farmers who use this technique a huge advantage.

Tissue cultured crops have the ability to yield more which gives farmers more yield per acre and their disease resistance capability gives them an advantage over traditional crops. Studies, have proven that tissue cultured plants taste better and have a better texture than traditional ones which make them more desirable on the market.

Recently, plant tissue culture is gaining grounds in Ghana and becoming more popular and as we navigate the challenges of a changing world including climate change and a growing population, plant tissue culture presents a practical solution to some of these issues and with rapidly changing technology, plant tissue culture will continue to expand, unraveling new possibilities and empowering us to pioneer a future where nature and innovation seamlessly intertwine.

TODAY'S TIPS

Maize farming is a popular and essential agricultural activity that requires careful attention to maximize yields. To ensure a successful maize harvest, farmers should start by selecting the appropriate maize variety that suits their local climate and soil conditions. Preparing the soil by removing weeds and incorporating organic matter enhances nutrient availability and promotes healthy plant growth.

When planting, it is crucial to adhere to the recommended seed depth and spacing to optimize plant development and minimize competition. Providing regular irrigation to meet the crop's water needs and implementing effective pest and disease management strategies are vital for protecting the maize plants.

Additionally, farmers should apply fertilizers judiciously, considering the specific nutrient requirements of maize at different growth stages. Monitoring the crop's progress, identifying any issues promptly, and taking corrective measures can lead to a successful harvest of fully mature maize cobs, resulting in bountiful yields for farmers.





Aquaponics

By Prince Opoku Dogbey



One innovative method has gained significant attention for its potential to revolutionize food production while minimizing environmental impact. Aquaponics, an integrated system that combines aquaculture (fish farming) with hydroponics (soilless plant cultivation), has emerged as a fascinating solution for cultivating crops and rearing fish in a symbiotic environment. By harnessing the power of this unique system, farmers are witnessing higher yields, efficient resource utilization, and reduced water consumption.

Aquaponics functions on the principles of a mutually beneficial relationship between fish and plants. In this closed-loop system, the waste produced by fish serves as a valuable nutrient source for plants. As water containing fish waste flows through the hydroponic component, it provides essential nutrients to the plants, which absorb them for growth. In turn, the plants filter the water, purifying it for the fish to thrive. This symbiotic cycle creates a self-sustaining ecosystem that requires minimal external inputs.



One of the key advantages of aquaponics is its remarkable efficiency in resource utilization. Compared to traditional farming methods, aquaponics consumes up to 90% less water due to recirculation and reuse. This feature is particularly crucial in regions facing water scarcity, as it offers a sustainable solution for year-round crop cultivation. Additionally, the controlled environment of aquaponics eliminates the need for synthetic pesticides and fertilizers, resulting in healthier, chemical-free produce.

Aquaponics systems are highly adaptable and can be implemented in various settings, from small-scale urban farms to large commercial operations. Its vertical design and modular structure allow for maximizing space utilization, making it ideal for urban agriculture. Moreover, aquaponics is not limited to traditional crops; a wide range of plants, including leafy greens, herbs, and even fruiting plants like tomatoes, can thrive in this system.

As the world seeks sustainable solutions to feed its growing population, aquaponics emerges as a game-changer in the realm of agriculture. With its ability to produce high-quality crops and fish while minimizing water usage and environmental impact, aquaponics represents a promising path toward a more sustainable and resilient food system.

Un bon emballage doublera les revenus des entreprises agroalimentaires en Afrique

Par Yosua Domedjui

Les aliments et les produits emballés font désormais partie intégrante de la vie de nombreuses personnes. La vie est de plus en plus chargée. De nos jours, de plus en plus de personnes veulent attraper rapidement une collation sur l'étagère et continuer à avancer. Nous mangeons des choses comme des biscuits, des boissons, des bonbons, etc. au moins entre deux collations. Les aliments emballés sont devenus incontournables, même s'ils présentent de nombreux autres aspects.

Voyons d'où viennent les produits bruts de ces produits emballés. Les produits bruts de ces aliments emballés proviennent d'abord des fermes. Cela nous montre à quel point les agriculteurs sont importants. Alors la prochaine fois que vous irez dans une épicerie et que vous choisirez quelque chose dans les rayons, pensez à l'agriculteur. L'agriculture a un rôle énorme à jouer. Si l'on se limite à l'Afrique, où l'agriculture occupe une place prépondérante, l'Afrique peut avoir de nombreuses perspectives à cet égard. Selon les recherches, plus de la moitié de la population est engagée dans l'agriculture. En outre, l'Afrique dispose de vastes terres arables, dont beaucoup n'ont pas été exploitées. Qu'est-ce qui pourrait expliquer ces mauvais résultats ?

De grands champs de cultures sont récoltés de temps à autre. La question est de savoir où elles vont. Sont-elles toutes consommées et les autres transformées en d'autres produits essentiels ? Un grand pourcentage de ces récoltes est



gaspillé. Alors que les autres, qui sont transformées, semblent être stigmatisées. Nombre d'entre nous, Africains, avons refusé dans une large mesure d'acheter nos propres produits. Les raisons en sont l'adoption d'un goût étranger, des politiques gouvernementales défavorables et des taxes qui entravent la croissance des entreprises locales. Cependant, la question du mauvais emballage est pertinente pour cet article.

Pour que l'emballage de nos marchandises prenne une bonne tournure, nous devons certainement être prêts à dépenser de l'argent. Or, la plupart des entreprises sont

assaillies par des taxes de plus en plus lourdes. Cela est devenu un défi pour ce secteur. Afin de réduire ces taxes lourdes, peu d'argent est investi dans l'emballage des produits finis. Malheureusement, ces produits se retrouveront en rayon avec des produits étrangers finement emballés. Il est rationnel d'opter pour celui qui a l'air le plus beau au premier abord plutôt que d'opter pour un produit mal emballé, même si le contenu est meilleur. En fin de compte, l'entreprise ne semble pas se développer, ce qui se traduit ultérieurement par de faibles revenus pour l'agriculteur. Le gouvernement peut également aider en réduisant les taxes sur les petites entreprises agroalimentaires.

Nos entreprises locales doivent également se rappeler qu'elles sont en concurrence avec d'autres entreprises étrangères. C'est le cas ici au Ghana, où les habitants ont un goût prononcé pour les produits étrangers. Il est bon d'investir dans l'emballage afin d'augmenter la durée de conservation des marchandises et de réduire les pertes pendant le transport. Lorsque cela sera fait, les entreprises agroalimentaires recevront davantage de revenus. Cela permettra d'augmenter les revenus des agriculteurs. Davantage d'industries seront créées, car la rentabilité des entreprises agroalimentaires sera évidente et davantage de personnes s'y aventureront. Ce faisant, le bon emballage contribuera à doubler les revenus des entreprises agroalimentaires.

La plupart des activités auxquelles se livre l'homme comportent une part de ressources naturelles. Toutes les ressources naturelles n'ont pas de multiples usages. Seules quelques-unes ont de nombreuses utilisations qui sont importantes pour l'homme. Le caoutchouc naturel est l'une des ressources naturelles qui a de nombreux usages. Ses caractéristiques le rendent polyvalent.

Ce serait un véritable casse-tête que d'oser énumérer les différentes utilisations du caoutchouc naturel. En d'autres termes, c'est une tâche impossible. Malgré cela, cet article tentera de mentionner quelques-unes des innombrables utilisations du caoutchouc naturel. Nombre de ces utilisations vont au-delà des utilisations simples et banales connues de tous, comme les élastiques, les balles en caoutchouc et les ballons. Il existe des utilisations plus complexes mais importantes du caoutchouc naturel. Cela en fait un produit très demandé sur le marché international.

Cette ressource naturelle polyvalente peut être utilisée dans un certain nombre d'applications dans différents secteurs tels que les transports, l'aérospatiale, l'agriculture et l'industrie chimique. Grâce à ses propriétés uniques, telles que sa souplesse et son élasticité, le caoutchouc naturel peut être utilisé dans de nombreux produits. Voici quelques-unes des nombreuses utilisations du caoutchouc naturel, même si elles sont plus nombreuses que celles qui seront abordées ici.

Le caoutchouc naturel est utilisé comme adhésif et comme revêtement, surtout lorsqu'il est sous sa forme de latex. Ces adhésifs et revêtements sont utilisés pour de nombreuses surfaces.

L'une des utilisations courantes du caoutchouc naturel est la fabrication de pneus. Dans notre monde actuel, de nombreuses automobiles circulent sur nos routes. Cela est possible grâce à la disponibilité du caoutchouc naturel qui permet aux fabricants de produire des pneus. Il est intéressant de noter que jusqu'à 50 % des pneus d'automobiles sont fabriqués à partir de caoutchouc naturel, tandis que 100 % des pneus utilisés pour les avions sont fabriqués à partir de caoutchouc naturel.



De nombreuses personnes préfèrent utiliser le caoutchouc pour les revêtements de sol. De nombreuses cuisines commerciales, des terrains de jeux et même des gymnases choisissent le caoutchouc comme matériau de revêtement de sol. La raison en est que le caoutchouc offre une surface qui aide à prévenir la fatigue, imperméable et antidérapante. Il a également une longue durée de vie et est facile à entretenir. Cela en fait une option idéale pour les revêtements de sol, en particulier pour ceux qui ont l'efficacité et l'économie à l'esprit.

Une autre application importante du caoutchouc naturel est la production d'airbags. Les airbags sont très importants pour de nombreux usagers de la route, surtout à notre époque où le nombre d'automobiles a augmenté. Ils sont fabriqués à partir de caoutchouc naturel et protègent les conducteurs contre les blessures causées par des accidents à fort impact.

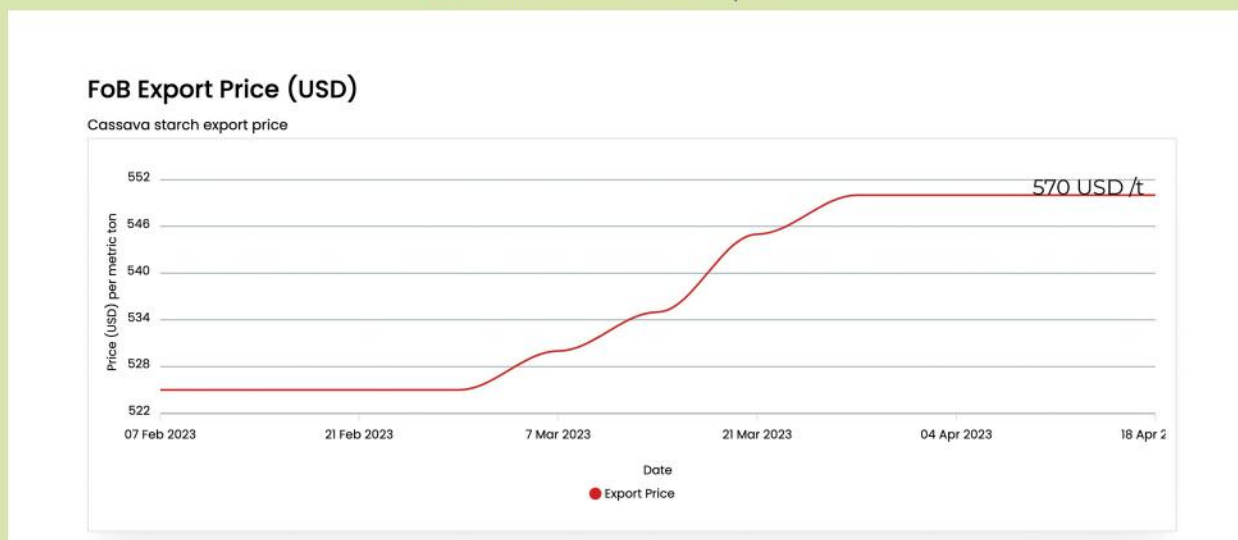
La dernière utilisation du caoutchouc naturel dont nous allons parler dans cet article est l'habillement. Le caoutchouc naturel est élastique lorsqu'il est sous sa forme fibreuse. Il est utilisé pour produire des vêtements moulants et extensibles tels que les shorts de cyclisme et les combinaisons de plongée.

En conclusion, il faut établir qu'il existe d'autres utilisations de ce matériau polyvalent dans nos activités quotidiennes.

Market Analysis of Cassava Starch In Thailand

The market prices of cassava starch have reduced slightly over the last month. The price ranges from 560-570 US dollars/ton (4,076.58 yuan /ton). This week, the market price of cassava starch in Thailand’s tapioca starch quotation is FOB (Bangkok) 570 US dollars/ton (4,076.58 yuan/ton). The starch prices in the domestic cassava starch market are stable. In Thailand, the raw material supply of fresh cassava is stable. The average starch leavening of cassava starch is between 24-28 percent. Thailand is relatively stable, the open factories remain high, and the starch output continues to increase. The speed of cassava starch clearance is still low, and the quotations of traders are slightly confused.

● Thailand Cassava Starch price



Price Factors

Quality of cassava root: Factory owners demand cassava with high starch content for production. Higher starch content would receive a higher price than the lower one. The price offered by the collector is dependent on the quality of the cassava root, specifically, the starch content.

Cost of Labour: Total labour cost including farm labour for the cultivation and harvesting of cassava. The cost of labour during the harvesting period is high as compared to cultivation therefore the cost of harvesting directly affects pricing.

Harvest Yield: There is a high correlation between harvest yield and the price of cassava. The price of cassava is lower when there is a low yield. The lowest prices in June and July can be explained in a similar way but the opposite end. It is noted that the abundance of cassava roots drives the prices down.

Handling and Logistics: The storage and shipping costs from producing areas to importing countries are great determinants of cassava prices. When the shipping and transportation cost of cassava to consumers and industries are high, it affects the retail price of cassava. Cassava farmers bring their harvest to the collectors, where they are responsible for absorbing the cost of transportation from farm to collecting fields.

Harvesting time: The harvesting period is a great determinant for the price of cassava. The abundance and scarcity of cassava affect the price. The prices of fresh cassava roots often rise in November and December of every year as cassava is easily harvested during the rainy season. During the harvesting season, the prices are relatively high due to the limited supply.



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