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Nutritious Legumes and Grains Delivered from the United States of America.

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ABSTRACT

Due to continuous research and development, the establishment of the agricultural industry in the US withstands the challenges ahead until now. After a while, farmers can improve their knowledge and skills in increasing the production yield for corn, cotton, pasture land, peanuts, soybeans, and winter wheat. Based on research and previous works, farming technology is at a continuous pace for lab tests and live experimentation. They attempted to naturally and organically handle the pests and diseases for healthier growing and safer eating. Computer graphics and positioning systems assisted farmers in their crop yield progress to navigate across the abundance of farm fresh produce. Newer species of seeds produce more nutritious and essential food safety. Ever since the increased demand for food from scratch, the required part of the land is not limited but fully utilised pasture for future farm use. However, crop diversity is declining as diversified utilities have to increase the number of produce. There are also alternative ways of facing this problem by introducing a new species of batch arranged in a different lane or seedling beds for more careful and attentive care.

Keywords: Production yield, Pasture Land, Winter Wheat, Essential, Food Safety.

INTRODUCTION

In rural areas, the main activities are plantation, vegetation, and fisheries. These agricultural activities generate business revenues and growth for industries to achieve at a higher level. That is, to match up with food demands in a population as it grew exponentially in meeting their daily consumption. The allocation for demand in food depends on demographic changes for future population growth.

Food proteins are the main focus of food consumption and production for the sustainability of business growth. The sudden changes in dietary patterns also play a crucial role in influencing their decisions to consume more proteins. Sometimes, they grew their vegetables and were involved in a more personal farming experience, a conducive environment. Financially, the food expenditure is off as a new kickstart. During a financial crisis, food consumption is in control due to the sole vegetation sites depending on food prices that continue to rise. Lettuce is the cheapest and fastest-growing vegetable compared to others.

Over the long term, the economics of scale for vegetable production continues to expand and grow as the demand and supply slope to reach a marketing equilibrium. There are direct and indirect costs when planting a garden in their backyards and inside their home apartments. However, it paid off with the minimum effort for the task of managing and controlling pests.

There are still world hunger persists today. Lack of essentials and nutrition causes the body to feel hungry and hurt at the same time. There were two types of engulfing the scenario, such as micronutrient deficiency and lack of protein metabolism. From the 1950s until the 1970s, the prominent factors of food production included a method of farming, land usage, fertilisers, water irrigation system, machinery, and skillful labours (IvyPanda, 2018). In 1974, food prices were getting expensive to cover the whole population, and a quarter experienced hunger (IvyPanda, 2018).

For instance, food restrictions and being under the weather cause hunger and pain in the community. One of the causes is crop plantation requires a water irrigation system to survive the draught and coarse lands. There are future policies to regulate high food prices to protect and nourish people for their healthiest state.

LITERATURE REVIEW

In Kenya, the frequent rain falling induced the floriation and plantation of crops and vegetables for food distribution across the country. It shows that the agricultural activity had made it in 2023. The most recent data is from the 11th to the 15th of March 2024 (Central Bank of Kenya, 2024). The face-to-face interview involves retailers, wholesalers, and farmers in selected markets and farms (Central Bank of Kenya, 2024). There are six

objectives for conducting the survey, including the price of commodities, assessment of output for selected food items, farm inputs for agricultural production (output), factors influencing agricultural production, marketing/ sale of farm produce, how farmers use the credit, and improvement strategies for agricultural production (Central Bank of Kenya, 2024).

There is a downward trend in the pricing of food items until April 2024 (Central Bank of Kenya, 2024). There is a moderating pricing effect on sugar production due to factory openings from October 2023 (Central Bank of Kenya, 2024). The elevated prices occur for tomatoes and onions (Central Bank of Kenya, 2024). There is a simple philosophy of lowering prices for a commodity in output to be increased for their future. Other initiative programs are transport and input costs and subsidised fertilisers in March 2024 (Central Bank of Kenya, 2024).

There were 247 respondents by the portions of farmers (55%), retailers (32%), and wholesalers (13%) (Central Bank of Kenya, 2024). As mentioned before, due to a rainy season from October to December 2023, the pricing of cereal faces a downfall, the shilling pricing of other food commodities declines as well, and the next harvesting season by positive impacts on weather conditions, fertilisers, and fuel prices (Central Bank of Kenya, 2024).

Economically, many food products require a low input cost to manage the food business. It includes an irrigation system that might be costly if put in too much for watering the whole crop yield. Two types of irrigation systems, raindrops and water soils, and water sprinklers are placed automatically on the field. Water soil is scientifically occurring naturally from the gravitational pull, including water beds experimented on several different kinds of plantations. There is a water shortage for plants to make their food in Alabama compared to other counties.

In the design of the experiment, the variability of interaction terms between two, three, and more variables leads to proper management of the watering system and crop yields. Due to climate change, it is crucial to have a balance in accommodating watering systems to the different soil types incorporating crop yields. Forest plantation is another strategy to enhance Malaysia's economic sector besides crop yields. For years, foresters with their own creative and innovative ideas to ensure natural diversity and economic development. There were scientifically proven methods for achieving success.

Cross-pollination ensures the flower and fruit breedings are nurtured and grown in a good quality batch for the industry. They have trial and error and pilot studies to support their theories. If a problem emerges, they study the roots and suggest some potential ideas for the continuation of the foresters. Consistency and precision are in a tree, such as a luscious batch filled with fruits and mass produce for manufacturing. During ancient times, there were no specific ways to grow their plant, but they were willing to try and prove that nature was one with them.

The nature-conservative strategies involve clean, reliable, and safe activities to preserve the habitat. Malaysia is one of the fastest-growing countries with techniques and encountered more challenges in raising and cultivating trees. Although deforestation activities are illegal, Malaysia conserves forest fields and wood supplies. Other than that, mother nature has trees as the resistance and reduces the tension between them to ensure their roots are still hanging beneath the Earth as there is a forceful attack in harming the ecosystem.

Thus, nature breeds itself to the fullest. In Malaysia, most varieties of new tree species have been covered and increased their true potential in helping the ecosystem fight Mother Nature. Rubber plantations for a long time in Malaysia. Psychologically, one plant at a time or experience with new types of species keeps the industry going. The first step is to pick up the seeds, grow them according to labeled batches, and allow nature to work. The neighboring countries also support the wood manufacturing industries in providing the best furniture.

Spatial and canonical analysis is for the identification of breeding sites for all sorts of trees. The land of acres and rainfall pouring are a part of building the ecosystem. Forest parks for centuries have a go with the communities of nature biodiversity. Apart from Sustainable Development Goals (SDGs), the maintenance and conservatism of growing plants and preserved wetlands can conceive and keep up with food production, conservative energy, and climate change. Despite environmental factors, the food grows in its natural state in abundance to keep up with the population growth. The imbalance of the biodiversity system seems to occur due to uncontrollable changes happening in the ecosystem.

The protectors of biodiversity come from natural causes and organic making. Things and activities that wipe out the ecosystem include human-made materials, such as pest controllers and bio-hazards. Thus, an ecological and environmentally friendly handmade gives a chance for a plant to nurture. In point of return, agricultural production is on various ingestions to go with nature. The demand and supply change of trade also play a crucial part in enhancing biodiversity because humans interact with nature to meet their daily intakes. In plain sight, the land usage for agricultural practices had reduced the size of the area for biodiversity. Thus, the well-balanced ecosystem in the food chain and eco-friendly approaches enhance the sustainability of interconnectedness among them. Despite hazardous and harmful toxins, the well-preserved energy ensures the continuity in giving life. Instead of money-making, the return cost of nature paid off.

Biotechnology accentuates the technology of having some implementations over the biological processes and cellular components to be agreeable to the environmental changes in the modern day (Ranjha et al., 2022). It extracts naturally and is environmentally friendly to produce more biodegradable products in saving Mother's Nature. In an agricultural field, for recovering the species and breeding and improving their natural habitat. Effortless takedowns over several encounters improved countless yields over healthier options provided for food production.

METHODOLOGY

The depiction and data retrieval are obtained from the United States Department of Agriculture which updated from 2019 until 2023. The research interest is to describe and examine the profiling of crop yields and performances based on the economical and natural-occurring factors that influence each one of the marketing of US agricultural products, including corn, cotton, pasture land, peanuts, soybeans, and winter wheat. Descriptive

statistics are conducted based on the retrieved charts and maps to assist researchers in making their subjective judgments and future decisions for the sustainability of the food market in the US.



Figure 1: A Simplified Framework on Steps to Descriptive Statistics on Agricultural Products in the United States of America (USA).

RESULTS AND DISCUSSION

The nutrient for soil is nitrogen. It is vital for allowing photosynthesis to occur and exchange sunlight for emitting oxygen and food to other living organisms, humans, and animals to feed on. Another method is to dissolve the nutrients inside the soil in the water by absorbing fertiliser. Thus, the process is called osmosis by creating an active transport to deliver the nutrients to the plants. The plants also have a cooling effect by allowing minerals to flow inside the leaves and stems for the pollination process to complete. These flowers are edible and nutritious for hearty meals, broccoli and artichokes.

Micronutrients absorbed inside the roots of a plant may also enhance the flavours and provide a nutritious meal that is ready to eat. Food fortification is just another setup for nutritious molecules since they induced the food with vitamins and minerals. An overdose of nutrient intake may even cause a fatal death due to overconsumption of vitamins or minerals. Therefore, a well-proper balanced diet may reduce the effect of fattening and indigestible diets on a person. Even if it is biofortification, the side effects are consequential and dissolve in the lack of nutrients since the overdose of uptaking does not reach the optimum level. It is a theory that is impractical because the dosage of it is not readable. Although carefully planned and researched, there is still a lack of scientific evidence to support the theory. The food can be appealing. The breaking down of dangerous chemicals has led to discolouration of the plant.



Figure 2: The Crop and Yield Performance for Corn in Alabama, USA in 2024.

In Alabama County, from May to September 2022, there is a downward inclination showing the yield of corn is not that good. Throughout the years except 2022, the crop yield for corn exceeds the average bound of above 50% with excellent performance. The highest achievement is in September 2021. The crop progress shows a speedy growth rate in maturing, silking, and harvesting of corn from 2020 until 2023 in Alabama, USA.

In Alabama, corn yields have declined to 134 bushels per acre, an 18% decrease since 2021. Thus, it is the lowest yield since 2016, when it reached 120 bushels per acre. In 2022, the expected acreage is 290 thousand acres, which is 55 thousand acres less than in 2021, which is expected to reach 38.6 million bushels. There is a 31% drop from 2021, in which Alabama is the third-highest corn grower and the highest since 1955.

In the USA, corn yields are expected to drop to 175.4 bushels per acre from 177 bushels with a slight difference of 1.6% per acre observed last year. Hence, the production is expected to yield 14.4 million bushels, which is a 5.2% decline from 2021.

Corn yields are expected to increase from 41 bushels per acre in 2022 to 159 bushels in Alabama. There is an increasing demand for corn, so the number of stocks is putting the price down for the produce.



Figure 3: The Crop and Yield Performance of Cotton in Alabama, USA in 2024.

Cotton in Alabama, the figures are fixed at a lower rate of 50%, indicating that the data did not perform very well in the manufacturing industry from 2020 until 2023. However, the crop progress for cotton continues to grow exponentially non-stop for mass production.

In 2022, Alabama cotton production is to increase to 745 thousand bales, a 55 thousand-bale increase from 2021. This is due to the higher expected harvested acreage in addition to the higher expected yield. The yield is to be 851 lb. per acre, which is a 3% increase from last year, 2021.

There is a significant decline in cotton production in the USA due to a higher abandonment rate. There is a slight increase in predicted yields from 2021, which is at 846 lb. per acre. The projected harvested acreage is 7.13 million acres, which is 3 million acres less than in 2021. In Texas, 43% of planted acreage went unharvested and was left abandoned. Texas cotton production is forecast at 3 million bales, which is the lowest since 1986. At the US level, the production is projected to be 12.6 million bales, which is the lowest since 2009.

Since the cotton acreage is downsized to 20% as compared to 2022, there will be lower prices at planting time in 2023 as well. Thus, Alabama accumulated 360 thousand acres of cotton in 2023, estimated at 13% of the decrease from 2022 (USDA June Acreage Report). In 2022, 54% of the crop was harvested nationwide. Due to a drought, Texas had to lower its cotton yield since the harvesting plant was already consumed by the natural cause. The devestated



fluctuations happened in 2020 (68%), 2021 (91%), and bounced back to the aforementioned in 2022 (54%). Overall evaluation, it is lower than expected production, increasing its prediction for the 2023–2024 marketing year average price from 76 cents to 79 cents per lb (pound).

Figure 4: The Crop and Yield of Pasture (Grassland) in Alabama, USA in 2024.

Similarly, pasture for animal feeding, such as grass-fed cattle, faces a downward slope for 2020 to 2023 in overall performance. It is a fixed condition at its fullest potential to become a good quality grassland.

As for yielding a crop, there is forage production. Further, good quality of seed also determines crop establishment by ensuring there is an acceptable seed-to-soil contact.

There is a testing for the crop suitability of a plant species. It includes lab test results for the acidity of the soil and the pH water balance of water. Then, a good seeding bed was put into a test to have the best yield of results. Pests and diseases are attacking the seeds even at an early stage. Further, a good seeding rate per acre also has a ratio in penetrating the soil in acquiring the most minerals to be absorbed by the plants. In addition, climate changes occur in monthly weather reports for seasonal planting.



Figure 5: The Crop and Yield Estimates of Peanuts in Alabama, USA in 2024.

It does not stop the mass production of peanuts accelerated growth in its progress from 2020 to 2023, but the downward slope occurs again to show the declining demand for the food product.

There is a 20.2% increase in 2021 for Alabama peanut production at 374 thousand metric tonnes. This is equivalent to a higher yield projected at 4000 lb per acre, which is still unchanged from 2012. The range of bushels to be set is from 3150 to 3650 lb per acre.

Again, Gerogia has set the record for being the leading producer of peanuts. Texas reaches the lowest yield expected to bet at 2100 lb per acre since 1995.

Overall, in the USA, the yield of peanuts is expected to be 4129 lb. per acre, which is similar in 2021, but the production loses its place by 3% to 3.1 million metric tonnes due to lower planted acreage.

On the other hand, the average harvesting plant increased by up to 9% compared to last year (2022. Compared to Georgia, Alabama is in second place for having the largest acreage for peanuts to grow at 167 thousand acres. Alabama is on a national trend for producing more peanuts in 2023, which is equal to last year's 3450 lb per acre. In consumption, peanuts are at the national level for producing a 5% increase in peanut butter. It is accounted for 60% of food daily so consumption. Since the demand for peanuts has increased, the price will also increase in the upcoming year, 2024.



Figure 6: The Crop and Yield Estimates of Soybeans in Alabama county, USA in 2024.

The same food category of soybeans seems to have a declining performance from 2020 to 2023 despite their continuous progress in manufacturing activity.

Soybeans face a similar fate as Alabama when it comes to having an expected yield of 42 bushels per acre, a 4 bushel per acre drop from 2021. Hence, production is expected to increase despite the lower yield due to the higher expected harvested acreage. There were 14.5 million expected bushels, which accounted for a 3.3% increase over 2021.

Overall, the USA has a record of 4.5 billion bushels of soybeans due to a one-millimetre increase in acreage (up to 87,2 million acres) and the expected 0.5 bushel per acre increase in expected yield. The 51.9 bushels per acre projected yield would be equivalent in 2016.

Soybean acreage had been reduced to 4 million acres nationwide. In Alabama, there is a 10% increase in acreage from 2022, with 400 thousand soybean acres harvested in 2023. In the US, soybeans have less appeal, and there is a decline in demand for them, forcing the price to decrease on their large production worldwide and their ability to meet global demand.

In 2023, the areas covered by drought will prevent corn and soybeans from uncovering the areas of harvesting, especially in Iowa, Illinois, Nebraska, and Kansas. It is measured at 42% of corn production under drought conditions as of August 15, 2023. Similarly, 38% of soybean production was in the chaotic condition of a drought during that period.





Geographically, even under good cultivated land for wheat to grow, there is a consistent performance from 2020 to 2023 in Alabama, USA.

The specified type of wheat cultivated in the land of Alabama is the red winter wheat. The most suitable climate is fall as it even blossoms into a nutritious meal to enjoy and avoid soil erosion. Wheat was recorded as the third producer of food commodities in the USA.

The soil is hardened and packed with density, which makes it difficult for the penetration of nutrients and minerals through the roots that let it breathe in. Small eathworms also could not survive to such a degree that their habitats were interfered with by the hardness of the soil. The level of compactness can be softened by the amount of sunlight and watering rate to help keep the surface and underneath it moist for compactable minerals to seep in. Wheat roots are the least tolerant to dense soils. There are some suggestive ways to increase the yield of wheat production. First is the grain drill (a drill to sow wheat fields) by planting the seeds in batches on the field for better growth. Then, there is an additional tip to help a wheat grain develop on its own, which is to mix the seeds with fertilisers. Under the cultivated land of Alabama, Georgia, and South Carolina, it was found that wheat production increased due to deep tillage, which diluted root pathogens and improved water absorption within the roots.

Thus, there are also important dates to uncover for the seasonal plantation of the wheat fields. For instance, in north Alabama, from October 15 to November 10, Besides that, at a high altitude, Sand Mountain would schedule an earlier average killing frost (wilted and rotten vegetation or other crop fields). Therefore, rescheduling from October 15 until November 1 would be optimal for wheat to grow.

CONCLUSION

There are diversities in the agricultural field that are involved with advanced farming methods and geopolitical information on the distribution of farmlands. There are also differentiated land resources, extreme weather, and climatic conditions. There are also significant changes in improving the crop fields and diversifying the ways to promote technologies for the same purpose. They are the field global positioning system, aerial survey on crop lands, parallel driving in the agricultural field, mapping of soil and yield of crops, some phytosanitary measures for dealing with diseases and pests, and crop quality (Ivanyo et al., 2021).

Economically, farmers are enabled to allocate risks and returns from yield production (Li-Miao et al., 2023). The focus is on building up a food chain and increasing the amount of fresh produce based on limited agricultural resources (Li-Miao et al., 2023). In fact, other relevant resources are water and labour (Li-Miao et al., 2023). Thus, the allocation for farmland, water, and labour still needed to be improved (Li-Miao et al., 2023).

Local farm fresh produce tends to lose its quality standard and be comparable to imported food for the survival of the communities. Thus, food prices have also increased by 3%, encouraging local farmers to pick up their tools for cultivating and harvesting their livelihoods (Abdulla et al., 2022). Another possible way of retaining the freshness of their local produce is by having good soil management (Abdulla et al., 2022). By having a contract farming procedure, the farmers are happy to see their perspirations really pay off in releasing them from financial constraints (Abdulla et al., 2022).

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