



Food Crop Farming and the Climate in Southern Ghana

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Abstract

The climate in southern Ghana has made it such that corn and cassava thrive very well when they are planted. They can be planted together, the cassava would be planted early just when the rains start at the beginning of the year. The major season usually has a dry spell in April but the early rains could still sustain the cassava till the end of the drought. Corn can then be planted within the young cassava sticks by the early part of May and then harvested in July to make way for the cassava to thrive alone. These two crops can be blended together to prepare 'Banku', a local dish which is rich in carbohydrates. Other simple-to-prepare dishes could be made from these two crops. It has become necessary for the farmer to request, and gain knowledge of the season from the Meteorological and Agro Meteorological Agencies so that they can factor the ideas into their farm planning.

Keywords: Season; Agro Meteorological; Crop Rotation; Weather; Climate

Abbreviation

CO₂: Carbon Dioxide

Introduction

It is mostly said that the climate is changing so it is up to the Practicing Agriculturalists to devise new ways of planting crops and how to care for them. Rain fed agriculture is becoming a thing of the past, the new climate has made some places to get floods and other places to be excessively dry. Planting dates have changed and is important to practice the irrigated type of farming in order to continue producing food for the population.

It is quite interesting to know that good farming must begin with a knowledge of the climate and the weather at the place in question. Excess or deficit of some weather parameters can influence the yield production of the farm, so crop rotation has to be applied when such situations arise. A research on the land must be made in order to know which type of crop will grow well on the land. Education on the plant production is also needed so that optimum yield could come from the farm.

A choice of crop was to be made for a newly given land for cultivation, the new farmer then looks round and saw a creeping plant growing very well, and then decides to plant a creeping crop which

is cucumber. That is such a good decision made, the nature of the land is such that tubers would not grow well there. The place is water logged and can be very hard during the dry season. Lack of experts to help in these kind of researches; which crop will do well for this land, and what land would be good for a particular type of crop is quite a challenging factor.

It is good to contact the Meteorological and Agro meteorological divisions of the country to seek advice on growing techniques. Conversations about crop production should be made with the Met Officials, they would also like to know what processes the farmers are using so that it would be checked if improvements could be made upon. Temperature, humidity, rainfall length and intensity are elements of the weather that could affect crop yield if they are not carefully studied.

Figure 1 is the mean monthly rainfall for southern Ghana. Most of the towns have similar rainfall structure because storms usually sweep across the country from the East to the West, producing widespread rains over large areas. Southern Ghana is said to have two rainy seasons: the major raining season and the minor raining season. This has been a fact and local farmers relied on to make their farms, but there were instances when certain deviations occur and the pattern can change.

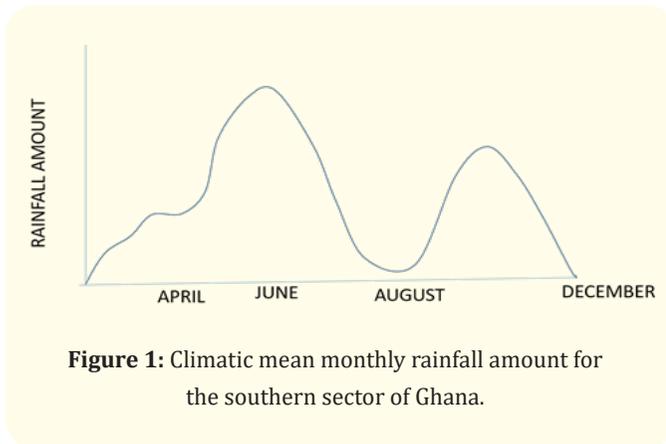


Figure 1: Climatic mean monthly rainfall amount for the southern sector of Ghana.

It is the responsibility of the Meteorological Agencies to come out clearly to predict whether the current year's rainfall amount will be like the previous years. In every June market places get flooded, roads blocked due to fallen trees, and with continuous rainy days. Will the rains be more than normal, or less than that? These are the questions that the public will need and start planning. This advice from the Met Office is what the farmer would depend on to decide planting dates.

August is a month where temperatures are generally low and has effect on rainfall. Rainfall diminishes at that time, no convective activities that could give substantial rain, but only cases of occasional drizzle occur most of the times. That is the time when crops like corn is harvested, and the land prepared for another planting in the minor rainy season.

December is a month of harmattan when dry hazy conditions are experienced. Dust settles on everything, including leaves of plants, and the soil becomes very hard. Even though the haze would be there, rain can set in whenever there is an influx of moisture into the sub region to wet the soil.

Information on the weather is very important and weather products would need a professional to interpret. From the rainfall distribution (Figure 1), it can be interpreted that April is the time when the harmattan condition returns. Though it is not every year that it happens like that, but if there would be a second bust of haze over West Africa from the Sahara Desert, April is the time that it occurs. A second burst affected Ghana on 23rd March, 2018 which is quite obvious, but yet still it continued into April. Even though it would hazy but there used to be rains that could sustain certain drought resisting crops until the rains start again.

Farmers in this sector of the country adopted a trick to practice crop planting. Because of the rainfall pattern, drought resisting plant like cassava is planted with spaces left for corn to be planted later on the same piece of land. It rains at least once in every month, so, right from the beginning of the year if it should rain for the ground to be soft enough to allow cutlass penetration, cassava is then planted. Corn is usually planted after the second bust of the haze when the rain starts again.

The cassava would take about 10 months to mature whilst the corn will take about 3 months. After four or five months' time the cassava would be dueling alone in the farm when the corn is harvested. By the time the corn is planted within the cassava it would not have so much leaves to shade the corn. At a point in time, the corn would also try to shade the cassava, then it will just be reaching time for its harvest. This type of farming is mostly to get money early enough to continue taking care of the rest of the farm. Most of the times, these maize are sold freshly for roasting or cooking.

Corn can be planted and harvested two times in a year over southern Ghana because of the two peaks of rainfall amounts (Figure 1). The time of the two peaks represents the major and the minor rainy seasons, June and October, respectively. Rainfall totals in the major season exceeds that of the minor season. Corn can be planted in April and be harvested in August, and then another corn planted in September and then harvested in December. It is advisable to plant 2 seeds per hill with a plant-to-plant spacing of 10 cm [1,2].

When this practice is done for about two years then other crops like beans and legumes are planted. It is believed that these plants have a high nitrogen contents in their roots and can revive the land.

In corn farming, the land is left fallow after every harvest. The land becomes bushy and cleared for the next season and the leaves are used for mulching and as manure.

Recently, chemical use has been introduced to the community where most people took advantage of it and clearing large areas for farming. When chemicals like weedicide are sprayed in the bush every plant species die, and it is leading to the extinction of most medicinal plants. It is now also difficult to locate certain herbs and fungi like mushrooms in the bushes.

It is quite interesting that these two crops grow well together. After harvesting, they are can be used in making variety of foods. The cassava can be grated into dough, while the corn can also be

grinded into dough. These two dough are mixed together to prepare a local dish called 'Banku'. It is starchy and very high in carbohydrate, so most people depend on it for their daily meal. The cassava dough can also be fried to make another easy-to-prepare food called 'Gari'. Gari can be soaked with just water and a little sugar without cooking it again.

Materials and Methods

Simple farm tools are the materials used in maize and cassava farming. Cutlass, hoe, and mattock are very essential in the mechanical aspect of the farming. The cutlass is used to clear the land, the hoe is used to make mounds for the planting. If there are any obstacles like a roots in the soil then the mattock is used to dig it out to allow free movement of the plant roots and tubers.

The cassava sticks are cut into pieces of about a foot, and then burring one at a time, with each end dipped into the ground at a slanting angle of about 30° from the vertical. The node growth direction points upward with about 2/3 of its length slanted below the soil at distances of 1m apart. Corn is planted by flipping a hole into the ground with the cutlass and few grains are dropped in. Two grains have been experimentally proven to do best in a single hole. After cultivating the land for about two years, different crops like beans and legumes are advised to be introduced onto the land in order to add some nitrogen to the soil.

Results and Discussion

Human activities have had effects on the climate and the vegetation of most countries. Trees are been cut down for farm activities and new ones are not planted. It is quite obvious that the crops would not grow under the trees, but scientifically those trees could have been replaced somewhere to take part in the carbon cycle. The diminishing rate of trees is in line with the rate at which carbon dioxide (CO₂) is rising in the atmosphere.

It has been experimentally proven that when leaves are used to mulch cassava and maize, they do very well than to be left bare, uncovered at the mercy of the direct sun rays. The ground continues to be wet for a long time after it has been watered.

Cassava and corn has fed about 60% of the population in Ghana over the years. About 30% of farmers solely rely on the production of these two crops for their living. They are crops that need no irrigation, especially when they are not in a dry condition. Cassava has never finished from certain farms because it does not have a particular period for planting. It can be replanted just after harvesting and the plant would remain in the farm without extinction.

Conclusion

Cassava and maize have fed lots of people in Ghana and most places around the world. It is therefore recommended that new ways for the production and preservation of these species must be improved. Cultivation and processing of the harvested crops should be well researched into so that the local farmers do not lose so much wealth from their harvests. There were instances where storage becomes problems for farmers and they would be forced to sell the crops at lower prices.

It is the hope of every farmer to get good harvests from the farm so the Meteorological Offices must be contacted for weather and climate advice before most farming decisions are taken. Rain fed agriculture would strongly demand the knowledge of the weather for the planting season. In the case of irrigated farming too, certain aspects of weather knowledge can enhance crop yield.

Appendix



Figure A1: A typical maize farm which is just about to mature [2].



Figure A2: A typical cassava farm at its youthful stage [3].



Figure A3: Cassava and corn planted on the same piece of land [4].



Figure A4: Harvested corn (maize) [4].



Figure A5: Harvested cassava [4,5].

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