

AGRICULTURE IN UGANDA

Agriculture refers to the growing of crops and rearing of animals

In Uganda, Agriculture is categorized into different farming/ agrarian systems and these include:

- i) Intensive Banana – coffee system
- ii) Afro – montane system
- iii) Annual pastoral system
- iv) The Eastern Teso system
- v) Northern millet – Cotton system
- vi) The west Nile Tobacco System
- vii) Banana – millet Cotton system

Status of the agriculture sector.

- i) The agriculture sector is growing steadily
- ii) Animal rearing is not very popular and only in a few parts and on a small scale.
- iii) Arable farming is dominant and it cuts across all societies in Uganda and with different crops grown in a particular
- iv) Agriculture is the backbone of Uganda's economy and it contributes about 25% to GDP
- v) The agriculture sector employs about 70% of the total population of Uganda either directly or indirectly.
- vi) There are several types of agriculture practices in Uganda e.g poultry, bee keeping etc

Farming systems/ agrarian systems

- a) Intensive Banana – Coffee system.

This system is confined along the shores of L. Victoria mainly in the Northern shores and some parts of Western Uganda. The major crops grown are Robusta coffee as the major cash crop and banana as a staple food crop.

However, there are other crops grown e.g tea, maize, potatoes.

There is also small scale animal rearing and animals like cattle, pigs, goats etc. this system is characterized by heavy rainfall of above 1000mm per annum well distributed throughout the year. It also has a double rainfall maximum which supports the growth of perennial crops. This system is also characterized by modern farming like market gardening, irrigation farming, floriculture.

The land tenure system here is registered titles and free hold system

This system is found in the districts of Mukono, Masaka, Wakiso, Buikwe, Jinja etc.

- b) Afro Montane System

This system covers the highland areas for instance around Mt. Elgon, Mt. Rwenzori, and the Kigezi highlands. The major crops grown are bananas which is the staple food crop and Arabia coffee and tea as the major cash crops. Other crops grown include Irish

potatoes, onions, vegetable and fruits, beans. There is also animal rearing especially dairy farming but on a small scale.

The land tenure system is both individual ownership of land and hereditary system. It is found in area that receive rainfall of about 1000mm per annum and this type of rainfall supports the growth of Arabica coffee, tea, banana etc. the system is found in the districts of Kabarole, Kisoro, Bududa, Mbale etc.

c) Annual cattle pastoral system

This is a system that is mainly practiced in the Ankole Masaka dry corridor in districts of Rakai, Kiruhura etc., Karamoja regions in districts of Kabong, Kotido and other areas in Nakasongola, Bulisa. The major pastoral tribes include: The Bahima, the karamajongs, Teso.

The pastoral system is found in areas that receive rainfall of below 650 mm per annum. This rainfall is unreliable and it doesn't support proper growth of crops but only drought resistant crops. The major activity in this system is nomadic pastoralism.

d) Eastern Teso System

This system is common in districts of Soroti, Kumi, Katakwi etc. This system is found in areas that receive rainfall of slightly above 750 mm that supports crop growth. The crops grown in this system are cotton as the major cash crop, maize, millet etc. in this system, annual crops are mainly grown due to a double maxima type of rainfall.

e) Banana – Millet – Cotton System

This system covers districts of Kamuli, Bugiri etc. it is found between the intensive banana system, eastern Teso system and northern millet system. The major cash crop grown is cotton and other crops include banana, millet, maize etc.

Annual crops are mainly grown in this system. There is a small scale livestock farming carried out with animals like pigs, goats etc.

f) Northern-millet-cotton system

This covers present districts of Gulu, Lira, Apac. It is found after the Teso system in the northern part of Uganda. Cotton is the major cash crop grown with other crops like millet, simsim ground nuts, maize etc.

The rainfall received in that area is about 750mm per annum and it is reliable. Annual crops are mainly grown because of the single rainfall maxima.

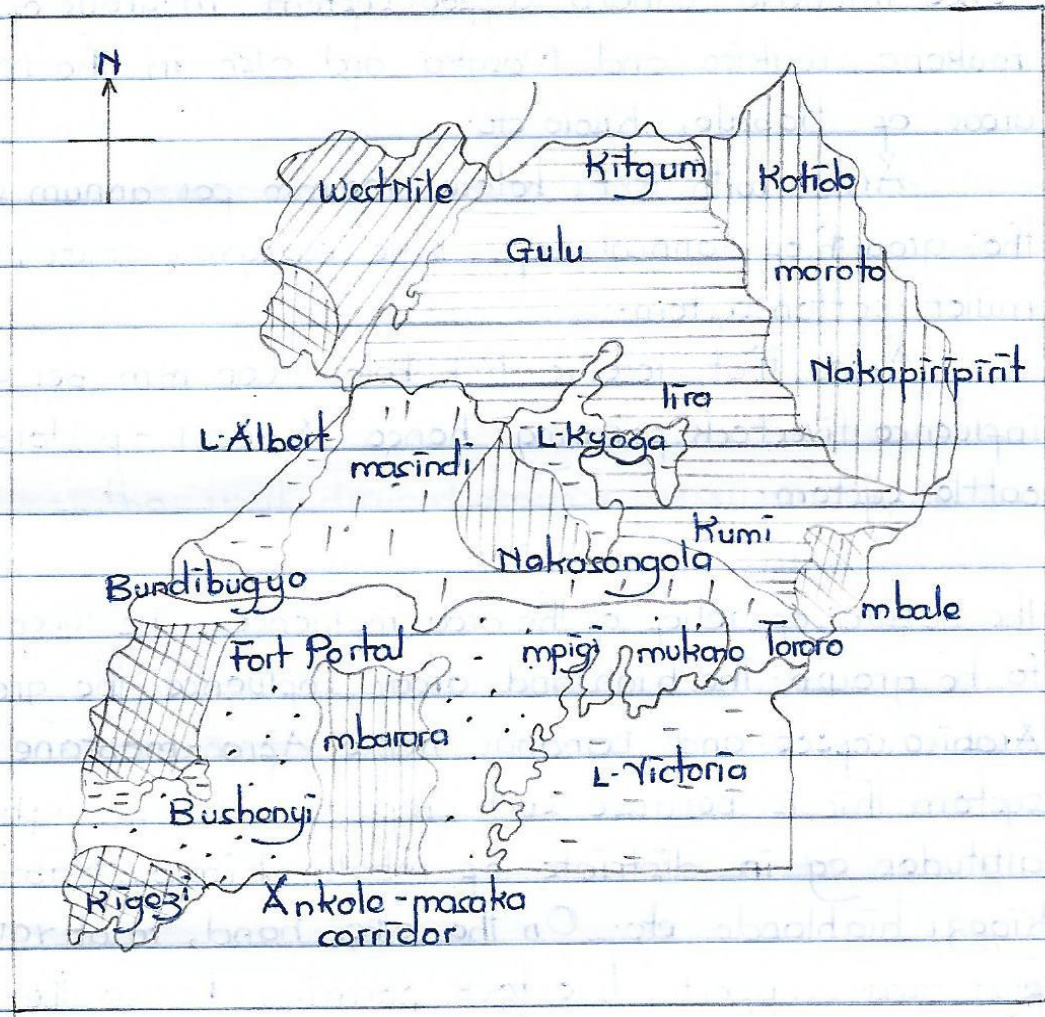
The land tenure system is mainly individual ownership of land.

g) West Nile tobacco system

These cover districts of Yumbe, Arua, Moyo etc. The major cash crops grown are tobacco and cotton and also coffee on a small scale. Other crops grown include G-nuts, cassava, sunflower etc.

The area experiences rainfall of about 1000mm per annum.

The Sketch map of Uganda showing farming Systems



Key

	Northern and Eastern cereal-cotton-cattle system
	Intensive Banana-coffee-cattle system
	West Nile Tobacco-cassava-Cereal system
	Afro-montane system
	Millet-cotton system
	Pastoral-Annual crop system

Factors influencing farming systems

i) Climate

The amount of rainfall and its reliability determines the farming system. Areas that experience rainfall of above 1000mm per annum support the growth of perennial crops hence intensive banana coffee system in areas of Mukono, Wakiso and Masaka and also in the montane areas of Kabale, Kisoro etc.

Areas with rainfall below 700mm per annum support the growth of annual crops like cassava, g.nuts, millet cotton system.

Areas that receive rainfall below 600mm per annum influence livestock farming hence Annual – pastoral cattle system.

- ii) The nature of the relief of the area influences the types of crops to be grown. The highland areas influence the growth of Arabica coffee and bananas hence Afro-montane system. This is because such crops do well in high altitudes e.g. in districts of Mbale, Kisoro, Kabale, Kigezi highlands etc. On the other hand, relatively flat areas support livestock farming hence the annual pastoral system e.g. in Nakasongola, Kabong, Kotido.
- iii) The nature of soils. These also influence agrarian systems whereby the rich fertile volcanic soils on the slopes of mountains Elgon and Kigezi Highlands support the growth of Afro-montane system. The fertile alluvial soils around the shores of L. Victoria have favoured the growth of Arabian coffee, bananas giving rise to intensive Banana – Coffee system in Mukono, Wakiso etc.
- On the other hand, the sandy infertile soils in Kotido, Kabong support Annual pastoral system.

iv) Nature of vegetation

Areas with dense vegetation cover eg the tropical rainforests experience heavy amounts of rainfall of about 1000mm per annum which supports the growth of perennial crops like coffee, banana hence the Intensive Banana Coffee system in Buikwe, Mukono, Wakiso etc.

Areas that are dry with Savannah grasslands have encouraged the Annual Pastoral system because of the plenty pastures

v) Drainage

The well drained areas favour the growth of coffee, tea, sugarcane in areas of Kabarole, Kabale and other annual crops like millet, g.nuts, cassava in districts of Kumi, Soroti etc. On the other hand, areas that are poorly drained support the growth of crops that grow in such areas i.e. yams, in areas of Bugiri, Pallisa etc.

Human Factors

i) Culture

Some cultures support the practice of a given farming system e.g the Karamajongs, the Bahima believe in cattle keeping as part of their culture hence the Annual Pastoral System.

The Baganda also believe in bananas as their staple food and coffee as their major cash crop hence the Intensive Banana – coffee system in Wakiso, Mukono etc.

- ii) Gov't policy also determines where some Agriculture practices are carried out e.g during the colonial times, cotton was to be grown in Bukedea, coffee in Buganda and areas of Mpigi, Masaka.
Today through various programmes e.g. NAADS program and Plan for modernization of Agriculture, the gov't has introduced various crops in various areas e.g citrus growing around Soroti, Kumi, vanilla growing around Mukono, cocoa growing around Bundibugyo.
- iii) Urbanization. This has influenced farming systems e.g floriculture, horticulture, green house farming, poultry market gardening etc. this is because of the ready market in the urban areas and small size of the land that encourages intensive farming. This is also associated with modern methods of farming like the use of fertilizers, green houses. This is evident in Kampala, Jinja etc.
- iv) The land tenure system. This is the ownership and usage of land. The free hold system in Buganda region in areas of Masaka, Mukono etc. has encouraged the intensive Banana system because people are free to use their land the way they wish whereas the communal ownership of land has encouraged livestock farming hence the Annual pastoral system.
- v) Availability of labor supply has favoured establishment of plantations and this is because such farms are big and therefore require large labour. E.g. sugarcane growing in areas of Lugazi, Luzira etc.
- vi) Availability of improved techniques of production whereby the presence of machines have also encouraged establishment of plantation farms e.g sugarcane growing in Lugazi where they use tractors for ploughing, Kibimba there is also use of combined harvesters in Kibimba rice scheme in Bugiri
- vii) The availability of improved transport and communication network has also influenced the development of farming systems. The roads are important in the transportation of Agriculture products to market centres and processing centres (plant) e.g. Kasaku tea estates and Lugazi sugar estates along Kla – Jinja. The Air transport i.e. Entebbe international airport has also encouraged floriculture

The role of Agriculture in the economy of Uganda

- i) Provision of food
Agriculture in Uganda provides all the food stuffs needed by the population for instance bananas from Masaka, Bushenyi, millet from Soroti, Kumi etc. livestock products like meat and milk
- ii) Agriculture provides employment opportunities about 75% of the population of Uganda are employed by the sector both directly and indirectly as farmers, transporters, processors etc. these people earn income which has improved their standards of living. This is evident at Masaka, Mukono, Kumi etc.
- iii) Provision of raw materials for industries. The industrial sector in Uganda is dominated by Agro-based industries that depend on the Agriculture sector for their

- raw materials. This therefore has encouraged industrial development e.g textile industries in Jinja the depend on cotton from Jinja, the Kakira sugar factory the depends on sugar from Kakira sugar estates, BIDCO industries in Jinja depends on oil palm from Kalangala. Etc.
- iv) It is a source of foreign exchange to the country through the export of the agriculture produce. The sector is the biggest foreign exchange earner with about 40% for instant coffee, cotton to China, flowers to Netherlands, maize to Kenya etc. the foreign exchange is used to develop other sector in the sector in the economy like transport, mining etc.
 - v) The sector is also a source of local revenue. The government has imposed taxes on the agriculture related activities e.g trading licenses, VAT. Companies that deal in agricultural activities also pay income tax for their workers e.g Kakira Sugar estates, Lugazi Sugar Limited. This revenue is used to develop other sectors in the economy eg construction of infrastructure.
 - vi) Agriculture has also encouraged the development of transport and communication networks. Agriculture is mainly carried out in rural areas and many roads have been opened up and improved upon to ease the transportation of the agricultural produce to market centres and processing in factories eg milk and bananas from Bushenyi through Bushenyi – Mbarara – Kampala road
 - vii) Agriculture has led to improvement in technology and techniques of production. For instance, the use of machines like tractors in plantation farms like Kakira Sugar estate, the use of combined harvesters in Kibimba rice scheme, irrigation farming etc. this has encouraged development of the agriculture sector.
 - viii) It has led to efficient utilization of resources whereby it has put in use some areas to their proper usage e.g the alluvial loam soils around the shores of L. Victoria have been used to grow bananas, coffee in the districts of Buikwe, Kampala Mpigi etc. The volcanic fertile soils along the slopes of Mt. Elgon are used to grow Arabica coffee in the districts of Mbale, Manafwa, Sironko etc.
 - ix) Agriculture has helped to diversify the economy first of all there are many agriculture activities e.g arable farming, irrigation farming etc. this has created more employment opportunities, widened the tax base and consequently reducing on over dependence on a few sectors of the economy
 - x) Agricultural activities have encouraged urbanization in some areas e.g Jinja, Kakira, Lugazi. These have partly developed because of the sugarcane growing that comes along with other social facilities e.g improved roads, supply of electricity, piped running water etc.
 - xi) Agriculture has improved international relations especially between Uganda and countries that import her agriculture produce e.g Uganda's sugar is exported to Kenya, coffee and cotton to China, flowers to Netherlands, this has encouraged direct and indirect investments in the country.
 - xii) It has also encouraged improvement of social facilities which provide social services e.g it has led to construction of roads, health centres, recreational centres. These are basically provided by the big plantation farms to extend social services to their

workers but this also benefits people in the surrounding communities eg Lugazi sugar estate has provided education facilities e.g Lugazi homeland.

Negatively:

- i) Agriculture has encouraged urbanization with its associated evils eg prostitution, drug abuse, robbery, easy spread of diseases. These are evident in towns like Jinja, Lugazi etc
- ii) Agriculture has led to rural urbanization migration. Many youths have abandoned their villages to urban areas especially those which are near big plantation farms and in a bid to look for employments e.g around Lugazi, Kakira. This has led (resulted) into low food production in rural areas where they come from.
- iii) Agriculture has led to deforestation whereby forests have been cleared to give way for agriculture for instance part of Mabira was partly cleared to Est Sugar estate, Kalangala forest or Bugala forest was also cleared to create way for the growing of palm oil in Kalangala. This has led to environmental degradation.
- iv) Agriculture has led to profit repatriation because most of the large scale plantation farms are owned by foreigners who transfer the profits to these countries. These profits would otherwise be reinvested to boost the economic growth and the country eg Kakira and Lugazi sugar estates owned by Indians
- v) Agriculture activities have led to soil erosion which have resulted into soil exhaustion eg cultivation along the steep slopes e.g. around Mbale.
- vi) Agriculture activities have also resulted into displacement of people in order to pave way for establishment of farms e.g. people from Kalangala Islands were displaced to create land for establishment of oil palm plantations and this has led to loss of property.
- vii) It has also contributed to pollution especially from the agro-based industry through emission of dangerous gases into the atmosphere and poor disposal and other wastes from these industries. This has resulted into environmental degradation e.g BIDCO in Jinja.

CROP HUSBANDRY (ARABLE FARMING)

This involves mainly the growing of crops at both subsistence and commercial levels. The crops grown mainly include coffee, tobacco, cotton, bananas, millet maize etc.

SUBSISTENCE FARMING.

This is the growing of crops mainly for home consumption, and very little is sold. This type is mainly carried out in rural areas of Uganda by the peasant farmers

characteristics

1. The farms are small often 50 hectares and less in size
2. Simple tools are used for cultivation e.g. hand hoes, pangas etc.
- 3 usually farms are made up of, several scattered plots of land which may be quite distant.

4. Unskilled labor is primarily provided by the family member
5. Mixed /inter cropping is carried out and crops grown include maize, beans, cassava, sweet potatoes etc.
6. The crops grown are mainly food crops for home consumption i.e. farmer and his family
7. Some cash crops may be grown e.g. coffee and cotton on a small-scale.
8. Fallowing of land is carried out ie land is left to rest for some time as a way of enabling the soil regain fertility. This is basically because farmers can't afford to buy fertilizers.

COMMERCIAL FARMING

This is the type of growing crops for commercial purpose or sale. This is divided into two i.e.

- a) Intensive commercial farming
- b) Extensive commercial farming

a) Intensive Commercial farming

This involves cultivation of crops on a small piece of land but resulting in to high yields. It involves mechanization of farming (use of machines), use of artificial fertilizers, irrigation, grafting etc Intensive commercial farming includes fruit growing eg in Kabale, floriculture in Entebbe etc.

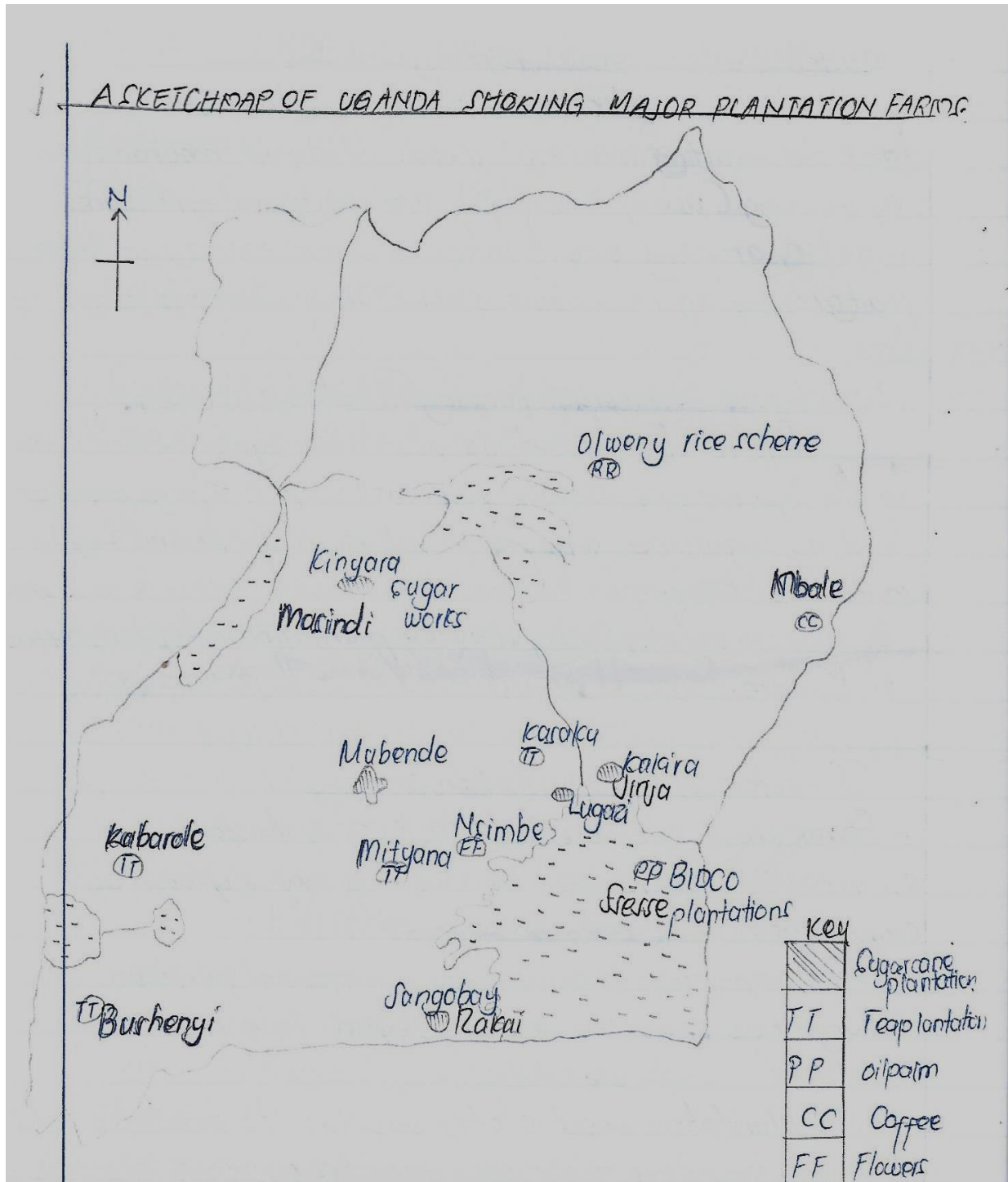
b) Extensive Commercial farming (Plantation farming)

This is also known as plantation agriculture. It refers to the growing of a single perennial crop on a large piece of land e.g sugarcane growing in Kakira in Jinja and Lugazi in Buikwe, kinyara in Masindi as well as tea growing in Bushenyi Kasaku tea estate, Nakigalala tea plantation in Kagganshi, coffee in Kawera

Characteristics of plantations farming

1. Farms are large extending to 1000's of hectares
2. Monoculture is practiced ie only one crop is grown eg sugarcane.
3. The crop grown is usually for commercial purposes.
4. Large number of workers are employed both skilled and unskilled.
5. The plantations need a lot of capital to be established and this is because they have their own facilities eg roads, hospitals processing factories and house centres

6. They are either owned by the good private investors or both. eg Kinyara sugarcane plantation is owned by the government of Uganda.
7. modern methods of farming eg use of machine eg tractors and irrigation are applied.
8. They also encourage out growers in order to supplement their output.



Significances/ Importance of Plantation Farms in Uganda.

Provision of employment opportunities. They employ a lot of people both skilled and unskilled e.g drivers, engineers, harvesters, cultivators, accountants etc. This results into acquisition of income to such people hence improvement in the standards of living eg Kakira and Lugazi sugarcane plantations, Kasaku and Nakigalala tea plantations etc.

Promotion of industrialization. Plantation farms have their own processing factories which depend on the plantation crop as their main source of raw materials eg Kasaku tea processing at Kasaku factory, Kakira sugar factory at Kakira SCOUT factory at Lugazi etc which have widened the employment base to Ugandans

It has encouraged modernization of agriculture and this is because plantation farms use a lot of capital. They have got a number of tractors that carry out the ploughing, seeding, Transporting & harvesting and they use artificial fertilizers. All these lead to modernization of agriculture and therefore high yields,

Promotion of out growers. This is because the plantation farmers can't fully meet the demands of the needed crop they therefore encourage farmers from the same area to grow the same crop as on the major plantation. Such farmers are called out growers who benefit from services eg provision of seedlings, advisory services in fertilizers from the main plantation farm etc eg Kinyara plantation in Masindi, Lugazi in Buikwe.

It has led to promotion of social services eg health centres, schools etc This is because they employ a big number of workers and therefore provide the services to their employees which end up benefiting the people in the surrounding areas eg Kinyara golf course, Lugazi primary and secondary school which all improve on people standards of living.

Plantations generate internal government revenue. Plantation farms pay a lot of taxes to the government from both independent plantations and the income tax levied on workers. Such taxes include ground rent license, income tax etc which generate revenue used in provision of social services to the Ugandans.

Improvement in transport networks i.e. roads and railway. Plantation farms have got more transport networks to ease the transportation of goods to market centres and the harvest to the processing centers e.g Kawolo - Lugazi road maintained by Lugazi sugarcane estate. Such infrastructure benefits the surrounding people.

It has encouraged the development of a monetary economy in plantation farms produce crops for communication purposes therefore reducing on subsistence farming eg tea growing in Bushenyi and Mityana. This has helped the country to realize economic growth & development.

Efficient utilization of resources. Plantation agriculture has put the would be idle land in use e.g sugarcane growing at Lugazi and also the residues from processing industries

which are used for other processes e.g spirits and fertilizers which are manufactured from sugarcane residues and Bagasse produces electricity.

It has led to improvement in skills of labor. Plantation workers train on job and gain more skills eg driving, repairs and maintenance of machinery e.g tractor in Lugazi and Kakira sugar factories. These skills are further used to improve people's lifestyles.

Improvement in research\tourism. Plantation farms encourage research through innovations & inventions. This has led to improved food varieties and therefore high production. Students from higher institutions of learning and students of Geography also carry out field work studies on plantation farms eg Kasaku tea estate, Nakigalala tea estate in Wakiso etc. This has improved on the available stock of knowledge.

Production of consumer goods. Plantations i.e. Lugazi, Kakira and Kinyara have sugar factories which produce sugar, plantations i.e. Kasaku and Kimuwoga in Bushenyi district produce tea which all are important ingredients in improving people's diet. These are consumed by the local people helping them to improve on their standards of living.

Plantations are a source of forex through exports of the plantation products to other countries. Eg sugar from Kakira sugar estate and Lugazi sugar estates is exported to S. Sudan, Rwanda and DRC while tea Kasaku tea estate is exported to Kenya, China and USA.

Improvement in international relations. Through plantation farming, Uganda has gained international relationships with foreign companies investing in foreign agriculture e.g SCOUT (Sugar Cooperation of Uganda Ltd), BIDCO and also countries where the products from plantations are exported eg Rwanda, USA, S. Sudan, China, Burundi etc This has encouraged more foreign investments into the country.

Diversification of the economy. This has helped to reduce on over dependence on only a few sector of the economy i.e. tourism industry hence has encouraged increase in development of income to the government.

Plantation agriculture has led to urbanization. This was a result of many people going near plantation farms to seek employment which has resulted into establishment of facilities i.e. housing estates, banks, hospitals etc. e.g Kakira town, Kinyara & Lugazi towns.

Negative

It encourages monoculture which results into soil degradation in form of the soils losing fertility. This affects agriculture productivity e.g at Kakira tea estates and Lugazi sugar estates.

It encourages rural urban migration. The young able bodied youth leave villages and go to work on plantations which has resulted into low cultivation of food crops and neglect of homes e.g near Kakira plantation in Jinja.

It has led to urbanization with its related problems and this is because of the increase in population numbers in such areas e.g. High crime rate in form of prostitution, theft, robbery etc. these are evident in areas of Kakira and Lugazi towns

Profit repatriation. Most plantation farms in Uganda are owned by foreigners. A lot of profits therefore are repatriated to their home countries and hence these would be reinvested to boost the economy growth and development of the country e.g Kakira and Lugazi are owned by Indians

Plantation farms are sometimes used as hiding places for wrong doers who cause insecurity eg highway robbers in Lugazi sugar plantations Kila – Jinja road which threaten people's lives.

It has also led to encroachment on the marginal land i.e. forests and swamps in order to pave way for the establishment of plantation farms. A case in point is Bugala forest which were cleared for oil palm tree plantations, Butamira forest for the extension of Kakira and part of Mabira forest which was cleared to plant the Lugazi sugar plantations.

It has also caused overexploitation of labour especially by the Indian investors who pay the workers small salaries (wages) and this is evidenced in the rampant strikes by workers on the plantations. e.g Kakira sugarcane plantations.

COFFEE PRODUCTION IN UGANDA.

Coffee is one of the traditional cash crops grown in Uganda.

It is mostly grown in areas of Central Uganda i.e. Masaka, Mpigi, Luweero, Mubende, Mukono, Wakiso, Mityana etc. It is also grown in some parts of Eastern Uganda in the districts of Mbale- Other areas include Bushenyi, Kabarole etc.

There are two major varieties of coffee in Uganda and these include;

1. Robusta coffee
2. Arabica coffee

It is however important to note that there has been an introduction of another type of coffee known colonial through continuous research.

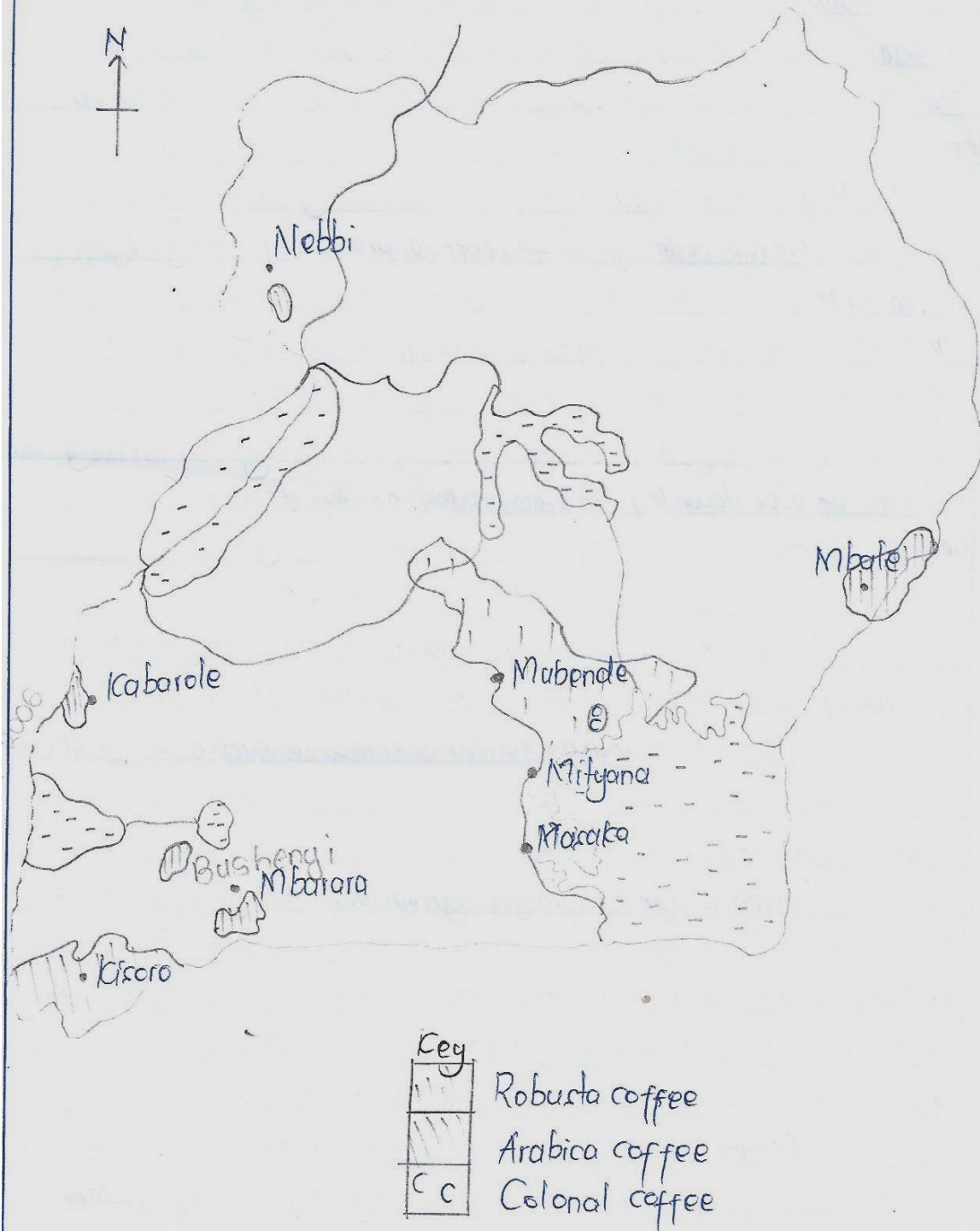
Status of coffee production in Uganda

Coffee is major agriculture forex earner in Uganda.

Coffee production has been steadily growing in Uganda. In 2004, 159983 metric tons were exported earning the country \$124.2 million dollars. In 2005, 142,513 metric tons were exported earning the country about 172.9 m dollars, in 2006, 126887 metric tons were exported earning the country about 189m dollars, in 2007, 164540 metric tons were exported earning the country USD 269.8million.

Coffee growing in Uganda is largely a small holder's crop with hardly any significant large scale production.

A sketch map of Uganda showing areas where coffee is largely grown.



CONTRIBUTIONS/ IMPORTANCES OF COFFEE PRODUCTION.

It is a source employment opportunity to many Ugandans in form of coffee farmers, workers in industries and transporters. Such people rely on coffee production as their source of income which has improved on their standards of living e.g workers in the coffee processing factories of Zigoti in Mityana.

Coffee is a major source of revenue to the government through taxes imposed on the coffee sales and the taxes imposed on the people working / employed in the coffee industry e.g. the coffee factories like Zigoti, pay taxes in form of operational licenses. This revenue is used to develop other sectors of the economy e.g health centres, construction of roads etc.

It has encouraged industrialisation. Many processing factories have been established e.g. Saba coffee processing factory, Zigoti coffee factory in Mityana, Bugisu cooperation coffee processing factory in Mbale etc. These factories provide

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It has encouraged industrialization. Many processing factories have been established e.g Saba coffee processing factory, Zigoti coffee factory in Mityana, Bugisu corporation coffee processing factory Mbale etc. These factories provide employment opportunities and have helped the country to realize economic growth and development.

It has helped in diversification of economy thus reducing on the risks of over depending on a few sectors of the economy. This is so because coffee is one of the major earners of Uganda after it is exported to countries like USA, China etc.

It has encouraged improvement in the transport network in form of road developments e.g the feeder roads in rural area have been improved to make the transportation of coffee to market centres easy e.g Sironko - Mbale road, Mityana - Kampala road, Bushenyi - Kabarole road etc.

Coffee is Uganda's major agricultural foreign export earner. This is through its exports to countries like China and USA. This foreign exchange is used to import other items in the different economic sectors of the country e.g machinery in the transport sector, tractors in the agricultural sector and medicine in the health sector.

Coffee husks are used as fuel in some homes and are also used as fuel in some industries e.g Kajjansi clay factory uses coffee husks to burn tiles and bricks

It is also used in tobacco currying especially in West Nile in districts of Moyo, Arua and Nebbi . This has reduced on the over exploitation of forests hence environmental conservation

Coffee husks are also used in mulching of gardens and this helps to maintain soil fertility hence promoting crop production. This is evidenced in Mubende, Mityana and Luweero.

It has also led to formation of co-operative unions eg Bugisu co-operative union in Mbale. They have helped in looking for market for coffee and other agricultural products. They also give advice to farmers, extend loans to farmers and this has encouraged regional development

The incomes derived from coffee sales are not only re-invested in the coffee industry but also in other sectors like industrialization, education etc hence encouraging economic growth and development.

Coffee growing has contributed to improvement of international relations between Uganda and the countries that import her coffee eg China, USA, UK, Singapore. This has attracted more foreign investments and aid into the country.

It has encouraged research in the agricultural sector which has led to improvement in skills and discovery of new crop varieties eg the research has produced a good and fast growing variety called colonial coffee grown in Mubende, Luweero, Mpigi etc.

Negatives

Coffee being a cash crop and a major source of income to farmers, it has led to neglect of other food crops like maize, bananas, potatoes etc hence resulting into famine. This is common in the coffee growing areas of Mbale, Sironko etc

Coffee is sometimes grown on extensive pieces of land and this has promoted monoculture which leads to loss of soil fertility hence affecting agricultureultural productivity eg Sironko

Coffee production is also affected by price fluctuations both on the localand international markets. This in some cases leads to losses and hence discourages farmers in the districts of Mityana and Sironko.

It has contributed to shortage of labour for other economic activities eg fishing, mining and forestry. This is because most of the people are involved in coffee production eg Mityana, Mbale and Sironko.

Factors limiting coffee growing in Uganda.

Pests and diseases ie coffee wilt. This has affected the quality and quantity of coffee produced and has also led to destruction of large plantations of coffee eg Robusta coffee in Luweero, Mityana & Mbale.

Poor and unfavorable climatic conditions eg the prolonged droughts which sometimes lead to drying of coffee plantations. This has again affected the quality and quantity of coffee produced in districts. Mbale Masaka etc

Soil exhaustion. This is because of monoculture practice in coffee growing. It has encouraged soil erosion which therefore affects soil fertility thus leading to soil infertility and consequently reduced agricultural productivity.

Shortage of land in some areas where coffee is grown eg Mpigi Wakiso, Masaka etc where the land Tenure System is private mile land have resulted into land fragmentation. This has limited the establishment of extensive coffee plantations.

shortage of capital to invest in coffee production in form of buying land, seedlings and other farm inputs. This is because many of the coffee farmers are still poor and therefore cannot afford to buy such inputs. Mityana, Sironko, Mbale.

The poor conditioned infrastructure. Roads in coffee producing areas are typically feeder roads and in poor state making them almost impassable during the rainy seasons. This limits the marketing of coffee because it makes it difficult.

Shortage of coffee processing plants (factories) to add value to the coffee. Most of the coffee in Uganda is exported in raw form and this has led to low income earning from the sales since the farmers get less profits due to the low value added. It has discouraged coffee farmers in areas of Kayunga, Sembabule etc

Poor seed varieties. Many farmers in Uganda can't afford to buy improved seedlings of coffee varieties. Therefore, they have remained with traditional coffee variation which are not very productive in terms of yield. eg Wakiso, Mpigi and Sironko and Mbale.

Shortage of skilled and unskilled labour. Many coffee farmers in Uganda lack skills of coffee production and there are a few trained agriculturalists to give guidance to farmers and sometime there is shortage of labour in the harvesting season in Mubende and Mityana.

Competition on the world market with other coffee producing countries ie Brazil, Kenya and Ethiopia. This has reduced market for Ugandan coffee.

Low levels of technology in the country. This has limited the size of coffee plantation due to lack of machinery eg tractors. This has further limited coffee processing due to shortage modern coffee processing factories leading to low profits from the cotton sales.

Coffee theft and smuggling in gardens. Many farmers in the rural areas are facing a problem of people who steal their coffee from the garden. It is sometimes smuggled to the neighboring countries leading to larger losses to farmers and the country of large eg Mbale and Mukono.

Unfavourable government policies eg the low funding extended to coffee production, worse still the gov't has not improved on some transport and communication lines ie roads and the gov't has not fully financed research in coffee development which has contributed to low coffee production in the country

The low demand of coffee as a beverage and this is due to the available substitute that act as coffee eg chocolate

Political instability in some coffee producing areas.

MEASURES TAKEN TO IMPROVE COFFEE PRODUCTION IN UGANDA.

Strengthening coffee research of Kawanda coffee research Centre in order to avail farmers with improved seedlings eg colonial coffee was a result of extensive research.

The UCDA opening up new markets especially in East Asia and the middle East. This has been done this opening up coffee shops eg in China to widen the marketing of the crop.

The UCDA is encouraging organic coffee growing in Bushenyi and Kapchorwa. The type of coffee is on great demand in USA and its price is usually higher than other types of coffee.

Largescale production of coffee is also encouraged and this is being emphasized to bring down the cost of production and hence bring in more profits. Examples include Kaweri coffee plantation in Mubende district.

The UCDA is encouraging good crop husbandry and planting of disease resistant coffee trees to improve on the production and quantity of coffee eg colonial coffee is being grown in Luweero and Mityana.

Sensitization and education of coffee farmers being carried out by the gov't to equip the farmers with knowledge of how to use modern production techniques ie pests and disease control, storing and marketing of coffee in district of Mbale, Mityana and Sironko.

The government is encouraging individual investors to invest in coffee production and processing eg Kawera coffee plantation ltd in Mubende owned by the Germans.

Improving on security to curb the problem of smuggling. This is being done by the police and other security agencies in the coffee producing areas of Kayunga and Kisoro.

Improvement in infrastructure through rehabilitation & maintenance of feeder roads to encourage marketing of coffee eg Mityana - Mubende road, Sironko - Mbale road etc

Replanting and removal of coffee that have been infested by pests & diseases. This is being done to control the spread of pests and diseases in the coffee producing areas of Mityana and Sironko.

Training of labour is encouraged to provide services in coffee production. eg agriculturalists are trained at Kawanda research station, Makerere university of agriculture etc aimed at improving coffee production in the country.

The gov't is improving on the size of form inputs eg seedlings, fertilizers to farmers through programs and agencies i.e. the UCDA, NAADS evident in areas of Kayunga, Masaka, Luweero etc.

The gov't is encouraging better farming practices eg use of fertilizers, spraying, mulching through services rendered by the agriculture extensional workers in Mpigi, Mubende etc.

Liberalizing of coffee sales thus eliminating the exploitation and inefficient coffee marketing boards. Today farmers are at liberty to sell their coffee to any cooperative union or even export the crop themselves.

COTTON GROWING IN UGANDA

Cotton was the most important traditional cash crop until the late 1960. Cotton was widely grown in areas of Masindi, Kamuli, Gulu, Lira, Apac, Pallisa, Soroti, Bukedea, Tororo and other localities. It is however important to note that cotton production has declined in most of the areas.

Status of Uganda Cotton

Cotton production has been fluctuating over the years inspite of the many gov't programs to revive the sector

The gov't has liberalized and privatized cotton growing production

Uganda cotton dev't Association is responsible for the management and marketing of cotton

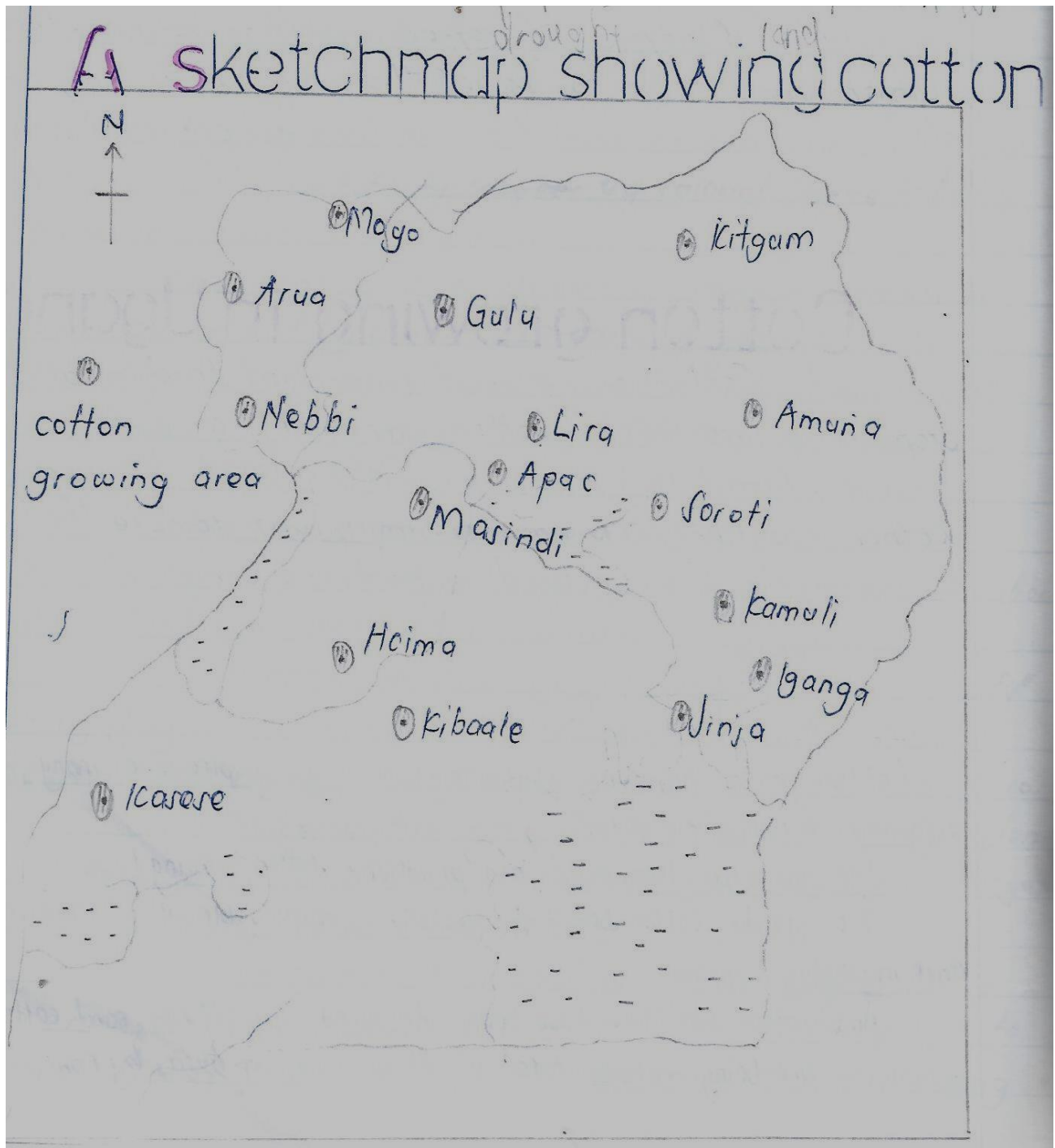
New cotton varieties have been introduced by NARO and cotton ginneries are being rehabilitated eg Rhino Camp in Arua by Core Cotton company, Nyakatonzi in Kasese, Lukonge in Manafwa, Iki-Iki in Budaka etc.

Still use of rudimentary tools and techniques such as hoes, hand picking etc are employed.

Family labour is still used on cotton shambas and there is over dependence on natural conditions such natural condition such as air, rainfall and soil.

N.B: The area under cotton production in Uganda drastically reduced in preference to other crops and factors ie droughts, low prices, low levels of technology, transport problems, expulsion of the Asians, collapse of the marketing board, pests and diseases, population increase, shortage of storage facilities and loss of cows which were used in opening up of fields are used in planting.

A SKETCH MAP OF UGANDA SHOWING COTTON GROWING AREAS.



Steps to improve cotton production

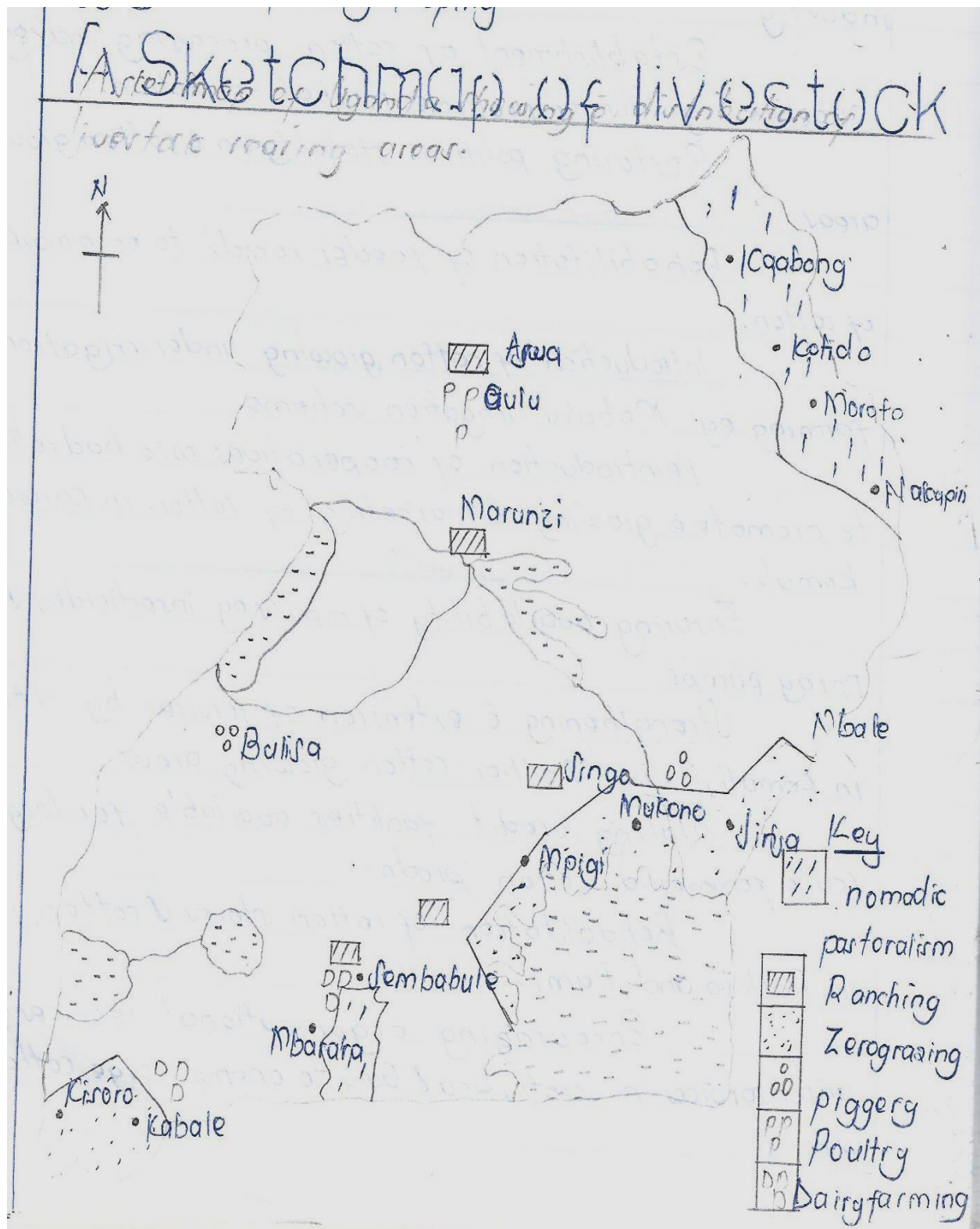
- Breeding of high yielding and pest resistant cotton varieties
- Establishment of organization charged with promotion of cotton growing and processing eg Cotton Dev't Organization (CDO)
- Attraction of foreign investors into the cotton industry.
- Establishment cotton processing industries eg phoenix logistics to provide market for cotton.
- Restoring political stability in the cotton growing areas
- Rehabilitation of feeder road to ease marketing of cotton.
- Introduction of cotton growing under irrigation farming eg Mobaku irrigation scheme.
- Reintroduction of cooperatives which had collapsed to promote the growing marketing of cotton in Kasese and Kamuli.
- Ensuring availability of inputs eg insecticides and spray pumps.
- Strengthening the extension of services by NAADs in Kamuli, Pallisa and other cotton growing areas
- Making credit facilities available for large scale commercial cotton production
- Rehabilitation of cotton stores and cotton ginneries in Pallisa and Kumi
- Encouraging organizational services eg prison services in Soroti, Lira, Gulu to open up large cotton farms

LIVESTOCK FARMING

This refers to the rearing of animals especially cattle, pigs, goats, poultry, sheep etc. The livestock industry is an important sub-sector of the agriculture industry. In Uganda, cattle, goats, sheep, pigs, poultry are reared on various scales.

The livestock industry can be categorized under the following major groups,

1. Ranching in Mbarara, Lira, Gulu, Nakasongola
2. Nomadic pastoralism in Moroto, Kotido, Nakasongola and some parts of Mbarara
3. Dairy farming in Kabale and Mbarara
4. Zero grazing in Kabale and some urban areas eg Kampala, Mukono & Mbale.
5. Mixed farming.
6. Piggery and poultry rearing:



NOMADIC PASTORALISM

This is a form of subsistence farming (livestock) which involves keeping of animals where a farmer (pastoralist) moves with animals from one place to another looking for water and pasture. It is practiced in districts like Kaabong, Kotido, Moroto, Nakapiripirit by the Karamajongs, parts of Mbarara, Sembabule, Mubende, the Ankole – Masaka dry corridor mainly by the Bahima and some parts of Nakasongola by the Baruli

Characteristics

- Animals are mainly kept for subsistence purposes like for milk, meat and blood for home consumption
- Transhumance is practiced i.e. seasonal movement in search for water and pasture.
- Large numbers of low quality animals are kept for prestigious reasons.
- Different types of animals are kept e.g. cattle, goats, sheep etc.
- Animals depend entirely on natural pasture for their survival.
- Burning of grass is done at the end of the dry season, to ensure fresh pastures at the beginning of the wet season.
- Communal grazing is practiced and this has been favoured by the communal ownership of land.
- Pastoralists don't employ modern scientific methods of animal rearing.
- It is practiced in areas of low and unreliable rainfall ranging between 250 - 750 mm pa and highly seasonal.
- The most valued animals are cattle which provide food in form of meat, blood and dowry.
- Farming is practiced in areas of low population to enable frequent movements of pastoralists in large areas of unoccupied land.

IMPORTANCE

- Source of food i.e. milk, meat and blood.
- Nomadic pastoralism is used for wealth and prestige.
- Animal droppings are used as fertilizer and raw materials.
- The animals in pastoral societies are used for paying dowry.
- The animals are used as labour to plough the gardens.
- Source of income to farmers.
- Source of government revenue through taxes.
- Provides employment to the people.
- Has led to improvement of infrastructure in areas where nomadic pastoralism is carried out.
- It has encouraged research in order to improve on nomadic pastoralism
- It has promoted tourism industry hence a source of forex.

- It has promoted economic diversification of the country
- It has promoted the utilization of the would be idle resources

negative

- It is responsible for environmental degradation
- It is characterized by insecurity through animal raids.
- It has discouraged monetization of the economy since the livestock is entirely kept for home consumption
- It occupies large expanses of land that would be used for other economic activities.
- The pastoral tribes are very hostile and unfriendly eg the karamojongs, hindering extension of social services to such regions.

Causes

The pastoral areas experience low amounts of rainfall below 600mmpa which is unreliable. This can't support the growth of crops but can support the growth of natural pasture hence encouraging nomardic pastoralism eg Kaabong, Moroto etc.

Pastoral areas experience several prolonged droughts. These cause shortages of pasture, water & therefore the pastoralists have to move from one place to another in search for water, pasture eg Kotido, Mbarara etc.

Pastoral areas are sparsely populated therefore creating enough land for pastoralism to be carried out eg Karomoja region has a population density of less than 50 people per square km.

Pastoral areas have poor infertile soils with low moisture content and this cant support crop growing but can support the growth of pasture eg Nakapiripiriti, Moroto etc.

Presence of pastures in the pastoral lands also support animal keeping because the pastures are nutritious and palatable to the animals eg in Nakasongola, Pallisa.

Pastoralists believe in keeping animals as part of their culture. This has encouraged a continuity of nomadic pastoralism in Kotido, Kaabong.

Conservatism. The pastoralists are very rigid and therefore are not ready to change their levels of lifestyles. This has contributed to persistence of nomadic pastoralism in N.E Uganda,

The pastoralists own land communally and therefore it encourages their movement from one place to another in search for pasture, water e.g. Kotido, Moroto, Nakapiripiriti.

Poor methods of farming have also encouraged pastoralism eg overstocking which leads to over grazing leading to shortage of pasture with the resultant movement from one place to another in search for water and pasture for animals.

Limited capital to develop modern methods of rearing animals e.g establishing cattle dips, buying pesticides and better breeds of animal etc. this has encouraged the existence of pests and diseases and hence pastoralists resort to moving from one place to another to avoid such limited support from the gov't of Uganda has not done enough to improve the lives of pastoralists and hence they've continued moving from one place to another in search for water and pasture for their livestock

Limited funding to change a ways of pastoralists since eg most are regarded as non-developmental areas.

Poor transport communication in such areas. Most of pastoral areas are located in remote zones with poorly developed transport communication lines. This has limited the flow of developmental ideas from more modern societies e.g. most of the professionals don't want to go work in pastoral areas.

Political instability and insecurity in most of the pastoral areas. This is in form of cattle raiding & rebel activities which have encouraged constant movement from one place to another to avoid cattle raids & death e.g. Kabong & Kotido.

Presence of wild animals in pastoral areas has also encourage pastoralism. Such animals include hyenas, leopards, and lions which attack the pastoralists and their animals hence the only way to avoid such is to move from one place to another

Current status of livestock industry in Uganda

The livestock Industry in Uganda is poorly developed and diseases like rinderpest, nagana still kill the animals.

Livestock products e.g. milk, meat etc. are sold in raw form ie un processed. It is also dominated by ignorant people eg the nomads who are basically subsistence farmers indeginious low quality animals are kept eg Ankole cattle, Zebu & Teso cattle. Ita

RANCHING IN UGANDA

Ranching refers to the keeping of livestock for mainly beef production and for commercial purposes. Ranching is a welcome feature of recent developments in animal husbandry in Uganda through establishment of commercial ranches.

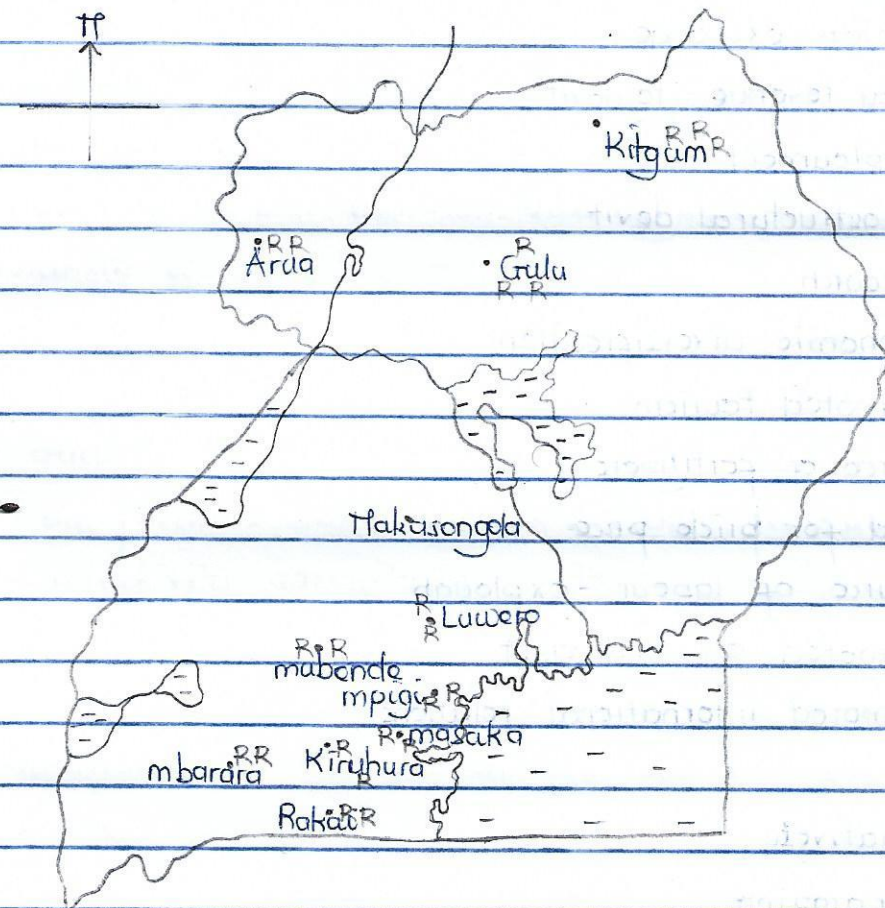
The most important ranching schemes are in Mbarara, Irisingiro kiruhura , lira, masindi, Hoima Gulu, Kiboga, Luwero, Mubende, Kumi, Nakasongola and Apac.

In Uganda today there are a number of meat processing industries which include the following: lubowa investment ltd seguku on Entebbe road, meat process on Gabba road kampala uganda meat industry ltd Old Port Bell road, Tannery and leather industry of Uganda ltd of Maraca, leather industry log nyanza in Jinja.

Main characteristics of commercial Ranching

- Animals are mainly kept for beef
- Livestock kept is mainly for sale
- The farms are subdivided into paddocks
- The animals are rotated around the paddocks to control overgrazing
- The carrying capacity of paddocks is strictly followed to avoid overgrazing.
- Animals are grazed on permanent farms
- Animals are permanently provided with water sources in each paddock which emits long treking in search of water.
- Selective breeding to produce high quality beef is followed
- Record keeping on the farms is done.
- Scientific methods of keeping animals are practiced eg crossbreeding and artificial insemination
- The land is privately owned by cooperatives, companies or parastatal bodies

A sketchmap of Uganda showing the main ranching schemes.



Key

RR^R

Main Ranching schemes.

Dairy farming in Uganda has become an important activity geared to improve the welfare of farmers. It mainly aims at the production of milk and its products ie butter, cheese, ice-cream, ghee & yoghurt. The dairy farms in Uganda can be divided into 3 major categories ie the traditional sector, small and medium sized dairy farms and zero grazing small scale dairy farms.

1. The traditional sector

This represents the largest group and its by far the most important. In this sector the cattle are kept on communal grazing grounds and confined near homesteads at night. Only indigenous cattle are kept eg Mbarara, Ntungamo and Sembabule.

2. Small and medium sized dairy farms.

These are mainly operated by private individuals (farmers) and institutions ie schools & churches. The herds involve both indigenous & exotic breeds, forms are fenced and scientifically managed etc

Examples include Jesa farm at Busungu, Beatrice farm in Kabale, Bugerere modern dairy farm and many others along Kabale - Kisoro and Kabale - Katuna roads as well as Masaka, Mbarara, Jinja, Tororo & Mbale.

3. Zero grazing small scale dairy farms,

These farms produce mainly milk. In this system a few cows are fed in a small area and the natural pasture is supplemented by Banana peelings, cotton seed cake and other feeds. Heifer which give the largest fluid of milk are used.

Status of dairy industry in Uganda

A number of industries have developed to facilitate processing and trade in milk. eg Jesa industries in Busungu, Alpha dairy and country taste, GBK dairy products, Soroti dairies in Soroti etc. However, they are still few and inadequate.

A lot of milk is directly sold to local people without actually entering the market.

Milk consumption is still low in the country estimated at less than 50 liters on average per persons

The sector is still dominated by local breeds ie traditional zebu and long horned Ankole type.

Factors that have favoured the development of the dairy farming in Uganda

- The liberalization of the economy in 1991 which encouraged private investors to participate in milk processing
- Vast range lands to provide sufficient pasture for the livestock.
- Introduction of imported livestock breeds.
- Introduction of better of storage facilities eg plants in Mbarara.
- Establishment of milk processing industry.
- Improvement in animal feeds through introduction of supplementary animal feeds e.g. cake
- Increased agricultural awareness thru NAADS and seminars
- Improved transport of communication
- Improved security
- Group farming inform of cooperations which has availed adequate capital
- Improved research on better breeds
- The control of pests and diseases
- Increased milk consumption by the Increasing population
- Drilling of wells and bore holes for the animals
- Establishment of gov't parastatal charged with improving the quality of dairy products eg the dairy development authority in Kabale and Kisoro.
- Making farmers access to credit facilities through microfinance institutions ie Pride Microfinance etc.

Zero growing

These are small scale dairy farms producing milk. In this system a few cows are fed in a small area and the natural pasture is supplemented by banana peelings, cotton seed cake, and other feeds. Heifers which give the larger fluid Of milk are used and this type of grazing is now spread all over the country in districts ie Wakiso, mukono ,mpigi, Jinja, Mbale, Pallisa, Kabale, Kisoro, and other localities.

Organization ie send a Cow int'l have been instrumental in promoting zero grazing through supplying heifers to various communities.

General problems facing Livestock farming in Uganda

- Low and unreliable rainfall. This has created shortage of water and therefore congestion at fewer water points. This has affected the quality of their product eg milk, meat in areas of Moroto, Kotido etc.
- Shortage of pasture especially during the dry season. In the dry season pastures become unpalatable and less nutritious. This affects the health of the animals and lowers their productivity in terms of milk, beef etc. This has greatly affected the income of the farmers in areas of Nakasongola, Bulisa etc.
- Poor methods keeping animals eg overstocking which leads to overgrazing. This has always caused problems of inadequate pasture for the animals leading to their starvation which and consequently their death. This is very common in Karamoja region, Ankole - Masaka corridor & Bulisa.
- Poor quality breeds of animals kept. This is sometimes as a result of animals moving long distances from one place to another in search of water and pasture. Consequently, the animals take long to mature and they produce poor quality meat as well as low quantity & quality of milk. This is very common in Kaabong and Kotido, Moroto where species are long horned cattle and the Zebu are kept.
- Pests and diseases There attack the animals sometimes cause their death. Such diseases include nagana for animals & sleeping sickness for the pastoralists from pests ie the tsetseflies in Kotido, Moroto etc.
- Bush burning. This results into soil erosion thus affecting & growth of pastures in districts of Masindi, Rakai etc leading to starvation etc leading to starvation of the herds.
- Inadequate veterinary services. This is due to the fact that most of the areas where livestock farming is practiced are remote and therefore there is Limited extension of offices to provide the services ie advising the farmer and providing the necessary medicines for the animals. In districts of Moroto, Kitgum, Karamaja, Nakapiripirit etc
- Cattle rustling. This has resulted into tribal raids steaming up general insecurity especially in the pastoral areas. This has resulted into death of animals and pastoralists eg between Karamajongs and Itesots.
- Conservativeness. The pastoralists are not willing to change their lives from the traditional methods of livestock keeping to the modern ones eg have persistently kept large herds of animals, communal grazing etc and are not willing to adopt modern methods ie artificial insemination, dipping etc which has maintained poor quality products from the animals.
- Unfavourable gov't policies, the gov't has not dominantly availed the necessary support to the livestock industry. Policies ie over taxation of the animal products and the farm managers, less attention to the pastoral societies etc have affected the modernization and development of the livestock industry.
- Poor infrastructural development in livestock farming areas. Some areas are too remote with poor developed transport routes which hinder the marketing of milk beef and other livestock products eg Moroto and Nakapiripirit

- Lack of sufficient processing industries to up the produce from the farmers which has increased the wastage of milk in districts of Kaboong and Nakapiripirit
- Corruption and embezzlement of resources which are directed to the development of livestock farming. This is evidenced in programs initiated by government to improve on Agriculture eg NAADS where the officers in such organizations misappropriate the funds hence leaving the sector underdeveloped
- Poor land tenure system ie the communal ownership of land especially in the pastoral lands where communal grazing is emphasized. This has aggravated the spread of diseases and lack of good care for the land in turn has affected health and quality of animals kept in Buliisa, Kotido and Moroto.
- Nature of relief. Some areas are mountainous with steep slopes making it difficult for the movement of animal. This has discouraged livestock farming in such areas eg around the slope of MT Elgon in Mbale, Sironko, around Kigezi highland in Kabale etc.
- Shortage of ready market for the animal products like milk, beef, hides. This is due to the fact that most of the Ugandans are low income earners and worsened by the external competition from other countries that produce similar animal products eg milk in Kenya.
- Shortage of land in some areas. This is very common in areas with dense population where land is used for other purposes like settlement. This has discouraged ranching, nomadic pastoralism in Mukono Wakiso, Kampala etc
- Lack of adequate capital to promote the livestock industry by purchasing exotic livestock breeds, drugs, chemicals animal feeds, milk cooling plants and material in Mbarara, Nuyama, Lyatonde, Sembabule.
- Conflicts over access to pasture and water are very common. Such conflicts have resulted into violent clashes and loss of livestock

Measures being taken to improve Livestock farming

- Constructions of dams and underground tanks to store the surplus water during the rainy season. There's also sinking of bore holes to provide permanent water sources in the pastoral areas of Kotido, Nakasongola, Kitgum etc.
- Development of livestock product processing plants in order to improve on the quality and also preserve the animal products eg GBK processing plants in Mbarara, Jesa milk processing plant along Mityana road all which are done to attract a wide market for the animal products.
- There has been improvement in transport and communication networks to ensure easy transportation of animal products to the market centres as well as farming inputs to the farming areas eg Mbarara - Masaka, Mubende-Kla etc
- Research & development of scientific methods of livestock farming ie artificial insemination is being encouraged to fight against pests and diseases and improve on the quality of animals kept. This is done through cattle dipping and spraying in Mityana, Mbarara, Mubende etc.

- Diversification of livestock farming where different types of animals are kept cattle goats, sheep, pigs, chicken etc. This is done to reduce overdependence on cattle eg in Mbarara.
- Importation of improved animal varieties in order to crossbreed with the local breeds. This is being done to improve on the quality and productivity of the animals eg Friesian animals in Ankole and Nakasongola.
- Extension of credit facilities to the farmers through microfinance institutions and banks together with other projects eg Centenary bank provider loans to farmers, heifer international etc
- Promotion of zero and rotational grazing to reduce on overgrazing caused by overstocking. This is being encouraged in order to control overexploitation of pasture for sustainable livestock farming eg Kisozi Ranching scheme in Gomba district, Ankole - Masaka ranching schemes in Mbarara etc.
- Control of pests and diseases. This is being done by use of pesticides and vaccinations against the animal pests and diseases ie Rinderpest, foot and mouth disease, nagana etc This is done in districts of Mityana, Nakasongola etc.
- The gov't has enforced the disarming programs especially from the pastoral communities to prevent cattle raiding. This is being done by use of peace and sometimes force. Through this program, there has been reduction in cattle raid and theft in areas of Kotido, Moroto, Kaabong etc.
- The gov't has improved security in livestock farming areas and this done to improve safety of the farmers and their animals especially in the areas affected by the rebel activities eg ADF in Kasese, Buliisa, Bundibugyo; the LRA rebels in northern Uganda ie Apac, Lira, Gulu, Kitgum etc.
- There has been introduction of exotic pastures which grow very fast yet they are nutritious. These have therefore improved on quality of pastures on which the animals feed eg Alfalfa in Ankole - Masaka ranching scheme
- Mixed farming is also being encouraged where keeping animals and at the same time growing crops. The crop residuals provide feed for the livestock & the animal residuals also provide manure to the crops. This has also ensured food security in livestock farming regions of Mukono, Mbale, Masaka, Mbarara etc
- Sensitization of the masses on the modern methods of livestock farming is also being carried out. This is through seminars, workshops, organization eg NAADS, Plan for modernization(PMA), Uganda- Nat. local Chicken Farmers Ass etc All those are aimed at improving livestock farming in the country.
- Encouraging investors to invest in livestock industries. Through provision of adequate capital and skilled manpower construct processing plants etc.
- Formation of cooperative unions & other farmer's association this is being done enable the farmers get loans at low interest rates as well as purchasing farm input at a subsidized price such association also help in finding mkt for the livestock products eg Uganda Nat. local. Chicken. Farmers. Association.

- Widening the market both locally and internationally. This is being done through exhibitions eg the annual agricultureultural show in Jinja which has helped to widen the mkt for the livestock products eg eggs from Uganda are sold to Sudan.

Factors limiting agricultural production in Uganda.

Climatic factors.

Agriculture depends on the nature of climate and therefore climate limits agricultural practices in Uganda in the following ways:

Areas that receive low & unreliable rainfall of below 700mm, pa don't favour crop production. Hence limiting cultivation in districts of Kitgum, Kotido, Kaabong, Nakapiripiriti etc

Areas that receive very low and unreliable rainfall of below 250 mm pa hence affecting livestock rearing in districts of Moroto, Ankole Masaka corridor etc

Some areas experience high fainfall amounts above 1500mm pa which has increased leaching. The heavy rains are sometimes worsened by hailstorms thus affecting crop growing in the areas around the L. Victoria basin in districts of Wakiso, Mpigi, Kalangala etc.

Relief. Steep slopes are not used for crop growing since they experience extreme soil erosion and also limit mechanization of agriculture eg on the slopes of Mt Elgon in Bududa, Sironko, Kigezi highland etc

The lowlands lead to flooding which leads to destruction of crops as well as limiting the grazing of animals eg the rift valley areas of Ntoroko, the valleys in Bushenyi etc.

Infertile soils. Areas that are dominated with infertile soils limit crop growing and growth of pastures for the animals eg Sandy soils in Moroto limit the rearing of animals while the latent soils in Kalangala limit the growing of coffee and bananas.

Poor drainage. Areas that are characterized with wetlands soils which are poorly drained and can

Only favour the growth of water loving plants. Such areas therefore can't favour growth of perennial crops and mechanization is also difficult e.g. Kibimba in Bugiri, wetlands along R. Mpologoma, L kyoga wetlands.

Pests and diseases. Some areas are characterized with pests and diseases resulting into destruction of crops and death of animals eg tsetse flies which have limited livestock farming in Hoima and ticks affecting livestock farming in Kitgum.

Traditional customs and practices. These sometime encourage conservation and some farmers are rigid to their traditional practices and are therefore not willing to change to modern ways of growing crops and rearing believe in keeping large herds of cattle in Moroto irrespective of the quality of the animal.

Poor land tenure system in some areas. Some areas have a land tenure system that discourage agriculture e.g. the mile in Buganda which renders the majority land less in Mukono, Mpigi & Masaka. In addition, the inheritance system encourages land fragmentation while the communal ownership of land encourages irresponsible ownership of land.

Inadequate skilled manpower. Most of the farmers who carryout agriculture are illiterate and ignorant about modern methods of farming eg use of fertilizers, use of family labour, paying low wages to the labour etc. This has affected cotton growing in Pallisa & in Bundibugyo.

Inadequate capital. This makes it difficult to purchase agricultural inputs eg machinery, tools, purchasing land and use of simple tools, ie hand hoes, pangas and axe leading to low productivity from the farms the Kamuli, Gulu, and the cotton growing areas of Soroti.

High population growth rates. The population of Uganda grows at a very fast rate of about 3%. This has resulted into the shortage of land needed for agriculture. Since the available land is used for other economic activities. eg settlement, industrialization and road construction.

Corruption and embezzlement of funds supposed to be used for agricultural development. This is done gov't officials in different institutions established to develop the agriculture sector e.g NAADS in Mbarara, DMA etc. which lead to agricultural losses.

Political instability. Some areas in Uganda have been unstable since they have been affected by rebel activities for a long time LRA in Northern Ug, the ADF in Western Ug etc These have forced the farmers to abandon their farms and have scared away investors who would provide the necessary funds for development of agriculture in the country.

Limited storage facilities. Most farmers use poor storage facilities since there is no improved warehouses in rural areas. This is worsened by the perishability of the agricultural prodts eg milk, foodstuffs leading to great losses esp in the harvesting seasons.

Poorly developed transport & communication network. Agriculture in Uganda is mostly practiced in rural areas with poorly developed roads most of which are impassable. This has delivery of agriculture prodts to market centers leading to losses

Rural urban migration - Majority of the able bodied youth have left their homes in rural areas and gone to work, in industries and other related jobs in cities leaving behind agriculture activities in the villages with the old parents who cant help to develop the sector.

Poor Prodn techniques. Majority of the families use simple tools ie hoes, axes, pangas which cant allow effective dev't of the agriculture sector since the cultivated plots are small.

Stiff competition / ltd mkt. Most of the agriculture products from Uganda can't compete because of the poor quality eg there's stiff competition for market for Ugandan coffee from that of Brazil. This has discouraged investors into Uganda's agriculture sector.

Measures being taken to improve the agriculture sector in Uganda.

- There has been increases research to develop high yielding crop varieties eg research by NARO at Kawanda has produced oranges, mangoes pineapples in Mayuge, Iganga as well as cassava in Luweero and matooke in parts of Masaka and Bushenyi.
- Introduction of improved livestock breeds eg the Friesian cows reared in Busunju, on the Jesa farm crossbreeding with improved livestock breeds and importation of improved goats in South Africa which are reared in parts of Mbarara and Ntungamo. All this is aimed at developing the livestock industry.
- Introduction of better storage facilities several cooling plants have been established in Mbarara and Isingiro to avoid milt waste
- Est of agriculture processing plants or industries to provide mkt & agriculture raw materials and reduce post-harvest losses eg Maganjo grain millers who purchase and process maize with other cereals from luweero, Masindi, kapchorwa, while Alpha Dairies process milk produced in Mbarara and Isingiro
- Improvement of soil fertility through the use of chemical fertilizers on plantations ie Kasaku tea estates & flour farms in Wakiso & Nsimbe estates in Mpigi. In addition to this, coffee husks are used to fertilize the banana and coffee
- Control of pest and diseases has been through spraying, vaccination, quarantine and dipping in Isingiro, Kiruhura and Sembabule.
- Increased agriculture education and awareness on better methods of agriculture production. This is done through seminars conducted by NAADS in districts ie Mukono, Mpigi, Wakiso, and Gulu where farmer is trained on the better methods of animal rearing and crop growing.
- Irrigation farming is practiced where it is inadequate eg Mobuku rice scheme at Kasese, Doho at Butalejja & Atera in Apac all aim at increasing crop production even during periods of low unreliable rainfall.
- There has been improvement in transport to the potentially rich agriculture areas so as to mobility of inputs and extension of workers to farms and the transportation of of product to the market eg the construction of Mbale - Kapchorwa road to transport maize and wheat and the Kampala - Hoima road for the transportation of tobacco, cassava and finger millet.
- There has been mechanization of agriculture for efficiency and to supplement the inadequate manual labour eg on plantation farms ie Kasaku in Mukono, Kibimba rice scheme is Bugiri and SCOL in Lugazi.
- Farmers have been provided with incentive to boost agricultural output eg tea seedlings to people in Bushenyi, upland rice for Kakiri in Wakiso district, hoes and pangas in Gulu and Amuru and cotton seeds in Iganga & parts of Teso.

- Credit has been made more accessible through establishment of microfinance institutions helping the farmers purchase farm inputs eg Pride microfinance and Uganda women Finance Trust in Kabarole. In Arua and Hoima, the British offer credit to tobacco farmer while Kakira Sugarcane plantation offers credit to sugarcane outgrowers
- Group farming is being encouraged eg Send a cow program in Rukungiri, Mbale & Bushenyi. In this program a female Friesian cow is given to the first farmers and when it delivers a female calf, the farmer gives it away to the 2nd member of the group. Farmers are therefore able to get improved cattle breeds where capital isn't available to purchase them.
- Improved security through peace talks to reduce rebel activities in Kasese by the ADF and in Gulu and Amuru by LRA which has promoted execution of agriculture activities with minimum interruptions.
- Liberalization of the which has promoted agriculture marketing eg, firms dealing in coffee buying, & export ie Zigoti in Mityana, BAT for tobacco and mastermind companies. Farmers are therefore assured of a ready mkt for their produce hence encouraging more investors into the sector.

Agricultural Modernization in Uganda.

This refers to the approach to agriculture development that involves use of scientific method of crop and animal husbandry, in an attempt to increase agricultural production. It also involves the transformation of a subsistence sector into economic dynamic structure that responds to mkt demand and provide a livelihood to feed the nation, generate surplus food or provide foreign exchange through exports.

A modern agriculture system is characterized by following a shift from subsistence to commercial agriculture which responds to mkt opportunities of demand.

Shift from low to high value farming. Ie from hand hoes to tractors & market gardening.

A shift from rudimentary to high yielding technologies.

Sustainable utilization of natural resources ie meeting current demands are people but at the same time preventing nature for the future generation eg afforestation and re-afforestation.

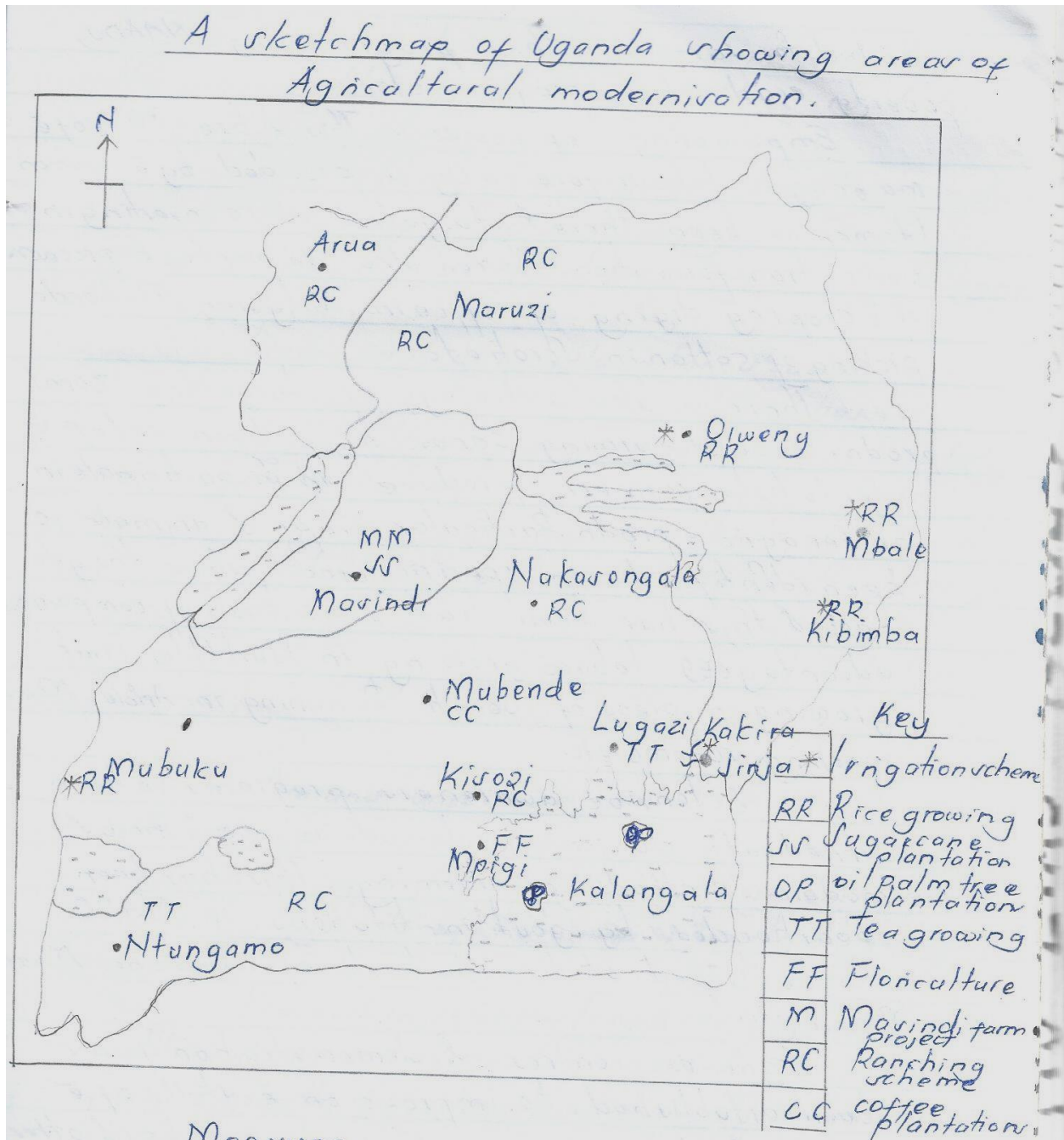
Use of better seed varieties & animal which ensure high output with low input.

Irrigation farming

Application of fertilizers where soils are reaching exhaustion.

In Uganda, today agric modernization has been undertaken in various ways and there has been an attempt to improve on the quality & quantity of crops grown eg the Doho irrigation scheme in Butaleja, Kibimba rice scheme in Bugiri, sugarcane growing in Lugazi and Kakira. Colonel coffee estates in areas of Mubende etc.

- Attempts have also been made to improve on the quality and quantity of animals eg Ankole Masaka ranching scheme, Jesa farm in Wakiso, Batumwa farm in Kabale etc.
- Demonstration & research station has also been established with the aim of improving on animals & crop quality & quantity of Kawanda research station, Mukono research station etc.



Measures taken to modernize the Agricultural sector in Uganda.

Development of agro based industries agriculture produce especially in the rural areas where agriculture is carried out Example include Ug grain milling factory at Jinja, GBK milk processing in Mbarara etc. These industries promoted the marketing of agriculture produce in Ug.

Provision of credit facilities farmers. This has helped the rural population to acquire, agriculture inputs ie fertilizers, machinery inform of tractors, access in veterinary services etc. The credit facilities are extended to farmers through programs like NAADS, poverty eradication program etc.

Empowering of women. This is because 70% of the major agriculture labour force in Ug is provided by women. Women have been therefore targeted while investing in agriculture transformation. Women also do most of the processing of the crop eg drying of coffee in Mityana, Mubende, picking of cotton in Soroti etc.

There is also strategy of targeting zonal production. Several farming zones have setup in order to help farmers produce all of participate in better agriculture – prodn. Particular crops and animals been identified in specific areas where they do best and this has been had on the basis of comparison advantage eg tobacco growing in West Nile, Fruit growing in areas of Soroti, ranching in Ankole – Masaka ranching scheme etc.

Extensive awareness programs have been carried out to continuously advise on the news modern methods of farming. This has been spearheaded by the gov't institutions ie NARO and have helped alot in districts of Mukono, Masaka, Mbale etc.

Agriculture research centres and demonstration farms have been established to improve on the skills of the farmers and also the seed varieties and other modern methods of farming eg Kawanda research station in Wakiso, Mukono research institute etc.

Environment conservation measures have been put in place to ensure continuous productivity of the land and reduce on environmental degradation through avoiding soil erosion by applying methods like terracing and contour ploughing, application of organic manure is also encouraged to avoid soil exhaustion.

Improvement in transport and communication has also been done eg the feeder roads in rural areas which have been rehabilitated to connect farming areas to major markets eg Kayunga Mukono road, Sironko - Mbale road; etc

Mechanization of agriculture has been emphasized.

Encouraging group farming

Provision of agriculture incentives to boost agriculture output

Increasing agriculture education and awareness

Introductions of better storage facilities

Liberalization of the economy which has boosted agriculture marketing.

Irrigation farming has been encouraged

Control of pests and diseases through spraying, vaccination etc.

Factors limiting Agriculture modernization in Uganda.

Physical

Low and unreliable rainfall. Rainfall in Uganda is low and unreliable income which has hindered the success of agriculture cultural modernization. This problem is evident in districts of Karamoja, Moroto, Nakapiripiriti, Teso region in Soroti, kumi district, Kasese, Bulisa etc

Poor soils in some parts of the country. Agriculture requires fertile soils which can adequately support crop prodn and pasture growth for feeding of animals. This is however not the case in some parts of Uganda where soils are thin and infertile. eg in Kotido, Kaabong where the soils are sandy discouraging crop cultivation.

Some parts of the country are characterized with steep slopes which encourage fast runoff and soil erosion. This has discouraged agriculture modernization in districts of Kigezi, Kabale and around Mt. Elgon slopes in districts of Sironko, Manafwa, Bududa, Mbale etc

High altitude in the mountainous regions where the temperatures are too low to facilitate crop growing. This limits the average land which could be used for agriculture culture.

The lowland areas experience very hot temps of about 27°C which limit crop growing and therefore the success of agriculture modernization in districts of Moroto & Kaabong.

Biotic factor

living organism eg plant weeds and pests hindered the success of agriculture modernization eg which affect animal rearing and settlement around Bunga forest in Maguye & Budongo forest in Masindi

Other factors

Traditional practices & customs. These are related to the values and practices attached to farming systems. In some parts of the country, traditional methods have hindered the adaption of modern methods. Teso region in Soroti where food farming is taken as a job for women hence limiting the labour. The pastoralists in Moroto & kotido also prefer keeping large herds of animals irrespective of the quality.

Poor land tenure system. The forms of land ownership in Uganda are many and have negatively impacted on modernization eg Mailo land system in Buganda has left some

people landless with space to practice agriculture hence discouraging Bibanja holders to utilize the land effectively

Limited capital. Most of the Uganda are still very poor and therefore they can't afford to buy land for extensive Commercial agriculture, can't buy the equipment required for agriculture modernization etc. This has limited the success of the program in the country.

Inadequate mkt s poor mkt arrangements for most of products. The demand for agriculture Communication in Ug is still low and price fluctuation is also very rampant. Potential mkt centres are very few and not accessible by the farmers.

Poor transport facilities. Many areas in Uganda poor conditioned roads which has made it difficult to transport agriculture produce from the farms to market centres and inputs to the farms. This is because of most of the roads almost impassable especially in the rainy season. Etc

Poor storage facilities. Most of the farmers still using rudimentary storage facilities eg baskets, tins, sacks, hand hoes etc. This leads to high levels of post-harvest losses which in turn limits the profits

Political instability

Population pressure

Corruption and embezzlement

Rural urban migration