

UNIT

1



Introduction to Citrus Farming



LEARNING / FACILITATING MATERIALS

CITRUS PRODUCTION
NATIONAL CERTIFICATE I



CAADP



NEPAD
TRANSFORMING AFRICA



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Introduction

Welcome to the start of your career in citrus production as a business.

A career in citrus production has never been as popular as it is now; competition is strong and standards are getting high based on market demand and value chain approach. Citrus farmers must aim higher, and see it as an opportunity for a lifelong career.

There have been significant changes in citrus production worldwide over the years offering new standards, techniques, products and opportunities. Many career options are also available.

This unit will also introduce you the learner to job opportunities within the pineapple value chain, such as overview in pineapple production worldwide and Ghana, market orientation and economic importance.

Congratulations for making the decision to study citrus production. You have taken the first step towards a very interesting and satisfying career.

Citrus is a tree of a genus that includes lemon, lime, orange and grapefruit. Knowing about citrus aids the farmer or producer to know when, how and the kind of citrus to grow within your region.

This learning material contains all necessary learning to ensure that the learner will attain the competencies required by the unit standard on introduction to citrus production for the **Certificate I programme**.



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Demonstrate knowledge of overview of citrus farming.

In this LO, you will learn about the types and origin of citrus, identify producing countries of citrus in the world, producing belts and districts in Ghana and the production levels of major producing countries.

PC (a) State the types and origin of citrus.

Citrus is a tree of a genus that includes lemon, lime, orange and grapefruit. The most recent research indicates an origin in Australia, New Caledonia, Malaysia and New Guinea.

Type Of Citrus

Origin



LIME

Limes originated from Malaysia.

Lime is one of the most cultivated citrus fruits in the tropics. Limes are shaped like lemons, but they are smaller and more acidic.



ORANGE

Orange is believed to have originated from South- and indo-China



TANGERINE

Tangerine originated from Southeast Asia



GRAPEFRUIT

Grapefruit is known originated from Asia

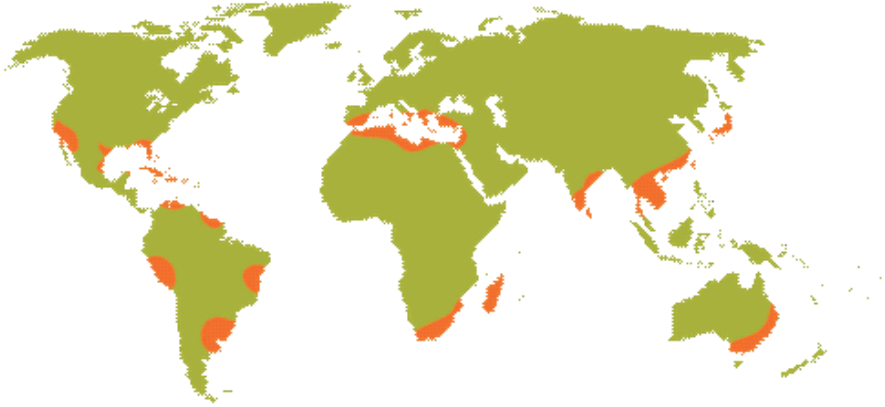


LEMON

Lemon's origin is supposed to be North India or Burma

PC (b) Identify the producing countries of citrus in the world











Producing Countries and their Levels



Citrus fruits are produced all over the world. According to UNCTAD, (2004) there were 140 citrus producing countries. Around 70% of the world's total citrus production is grown in the Northern Hemisphere, in particular countries around the Mediterranean and the United States, although Brazil is also one of the

Top ten total citrus fruits producers 2007 (tonnes)

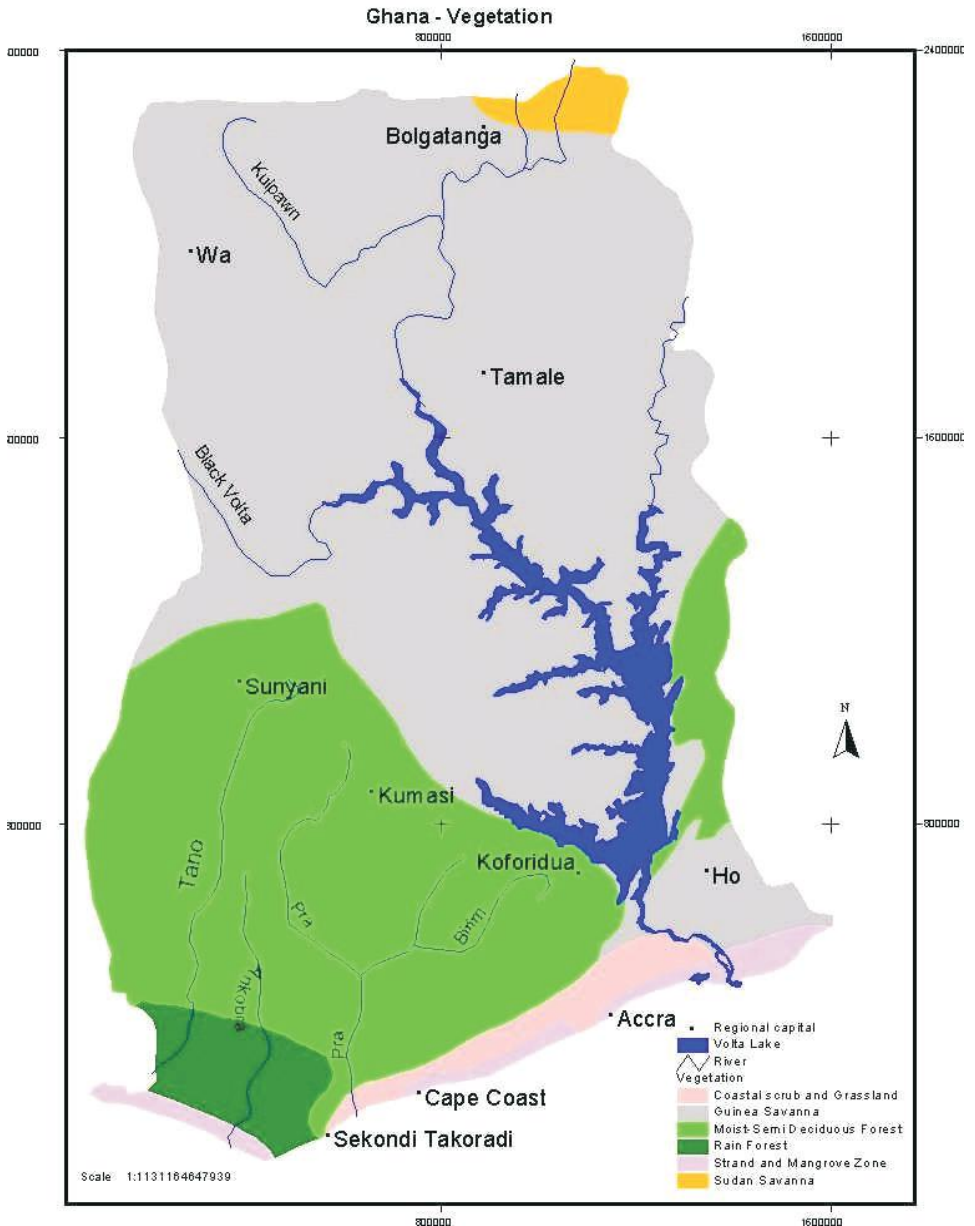
World's top producer in each category is given in grey

Country	Grapefruit	Lemons & limes	Oranges	Tangerines, etc.[5]	Total
 Brazil	72,000	1,060,000	18,279,309	1,271,000	20,682,309
 China	547,000	745,100	2,865,000	14,152,000	19,617,100
 United States	1,580,000	722,000	7,357,000	328,000	10,017,000
 Mexico	390,000	1,880,000	4,160,000	355,000	6,851,000
 India	178,000	2,060,000	3,900,000	-	6,286,000
 Spain	35,000	880,000	2,691,400	2,080,700	5,703,600
 Iran	54,000	615,000	2,300,000	702,000	3,739,000
 Italy	7,000	546,584	2,293,466	702,732	3,579,782
 Nigeria	-	-	-	-	3,325,000
 Turkey	181,923	706,652	1,472,454	738,786	3,102,414
World	5,061,023	13,032,388	63,906,064	26,513,986	115,650,545

Source: (wikipedia, 2014)

Ghana is #25 in the world ranking country in citrus production.

PC (c) Identify the citrus producing belts and districts in Ghana
Ghana Map of vegetative belts in Ghana



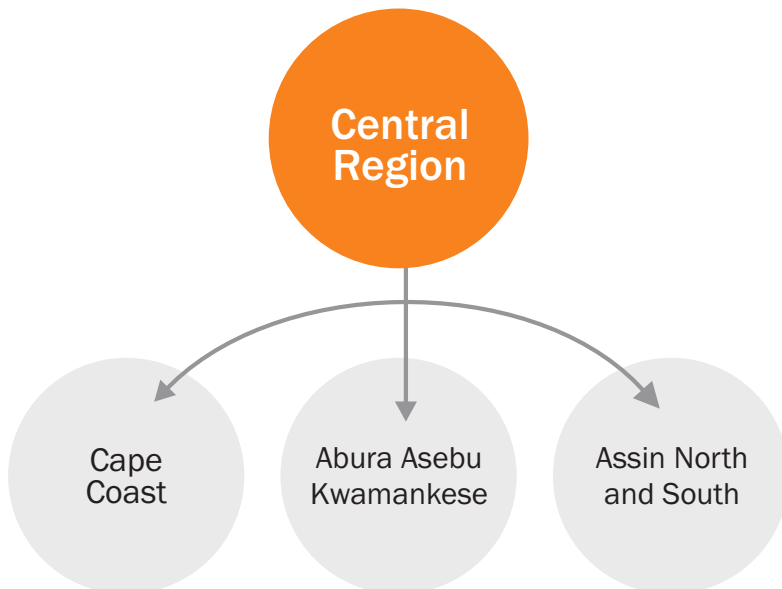
Citrus production can be found in the moist semi deciduous belts indicated green on the map shown above. These areas include:

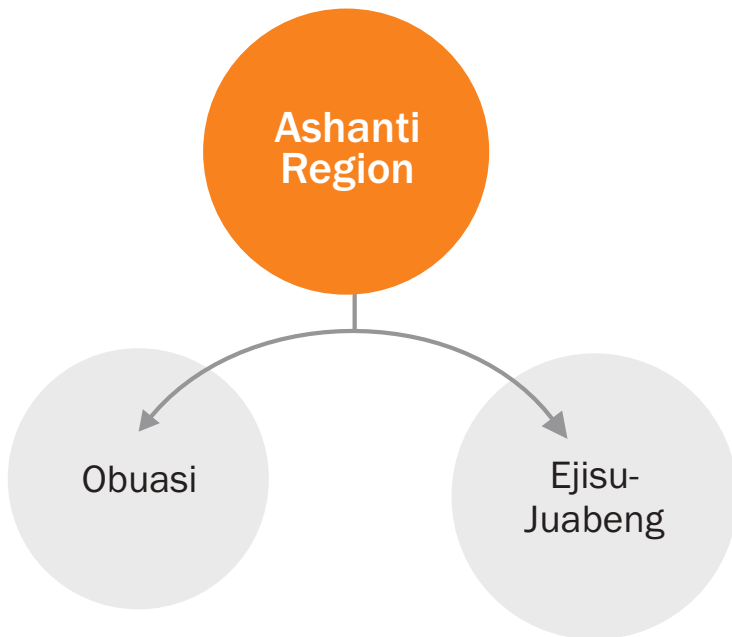
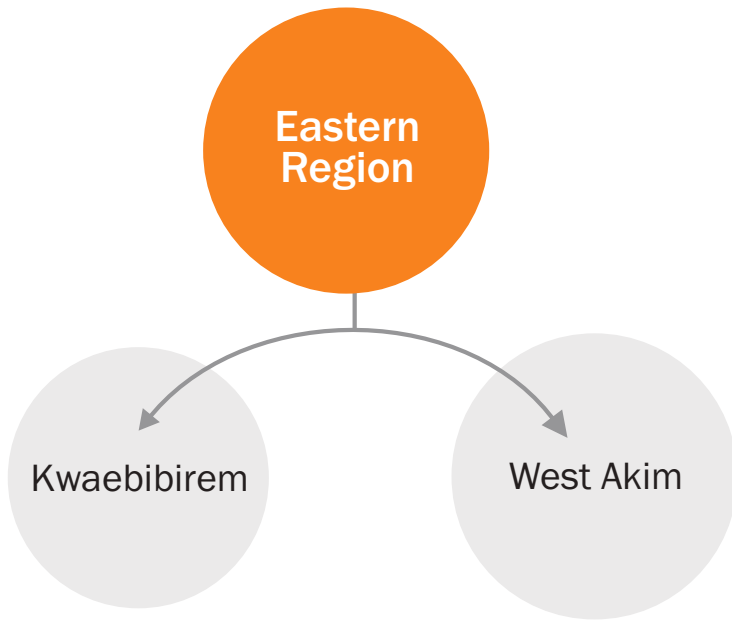
Regions and Areas of Citrus Production in Ghana.

Region	Area
Central	<ul style="list-style-type: none">● Assin Fosu● Asebu
Ashanti	<ul style="list-style-type: none">● Obuasi● Nkawie
Eastern	<ul style="list-style-type: none">● Kade● Asamankese
Brong Ahafo	<ul style="list-style-type: none">● Sunyani● Berekum
Volta	<ul style="list-style-type: none">● Hohoe● Jasikan

Note that not all areas found within the table above are into citrus production. This is due to the soil distribution and other factors that are favourable for citrus farming.

Some examples of areas found in Ghana that are into citrus production are:





PC (d) State production levels of major producing countries

The table below shows the world citrus production as at 2012. Ghana was ranked the 25th in citrus production for 2012.

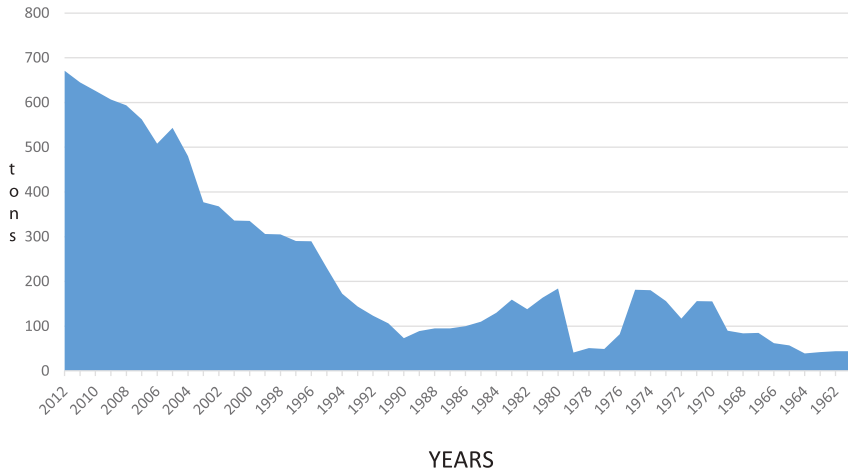
Rank	Country	Production (tons)
1	China	32,221,345
2	Brazil	20,258,507
3	United States	10,619,510
4	India	8,000,000
5	Mexico	6,750,161
6	Spain	5,501,500
7	Egypt	3,980,151
8	Nigeria	3,900,000
9	Turkey	3,556,407
10	Italy	2,904,946
11	Iran	2,832,500
12	Argentina	2,815,000
13	South Africa	2,314,379
25	Ghana	671,000

SOURCE: (Factfish.com, 2014)

PC (e) State production levels in Ghana

Citrus production in Ghana has been increasing over the years. The chart below shows the production level of citrus over some period of time.

Citrus Production levels in Ghana (tons)



SOURCE: (Factfish.com, 2014)



Self-assessment

PC (a)

- Complete the table below

Type Of Citrus	Country Of Origin
Lime	
Orange	
Lemon	

PC (b)

- State the major producing country each for the following citrus fruits:

Type Of Citrus	Major producing country
Sweet orange	
Lime	
Lemon	

Tangerine	
Grape fruit	

PC (c)

1. State one area each within the given regions where citrus is grown.

Region	Area
Central	
Ashanti	
Eastern	
Brong Ahafo	
Volta	

PC (e)

1. State is the current citrus production level in Ghana?
.....
2. Discuss two (2) factors that might have led to the increase in production of citrus in Ghana.
.....
.....

Demonstrate knowledge of benefits of citrus.

In this LO, you will learn about the medicinal, nutritional and cosmetic values of citrus.

PC (a) State the medicinal values of citrus

Citrus fruits have long been valued as part of a nutritious and tasty diet. The flavours provided by citrus are among the most preferred in the world, and it is increasingly evident that citrus not only tastes good, but is also good for people. It is well established that citrus and citrus products are a rich source of vitamins, minerals and dietary fibre (non-starch polysaccharides) that are essential for normal growth and development and overall nutritional well-being.

- **Medicinal benefits of lemon**
- Fights infection by enhancing the production of White blood cells and antibodies in blood which attacks the invading microorganism and prevents infection.
- It is an antioxidant which deactivates the free radicals preventing many dangerous diseases like stroke, cardiovascular diseases and cancers.
- It lowers blood pressure and increases the levels of High-density lipoprotein (HDL) - good cholesterol.
- Lemon is found to be anti-carcinogenic which lower the rates of colon, prostate, and breast cancer.
- A few drops of lemon juice in hot water are believed to clear the digestive system and clean liver as well.
- Lemon juice is given to relieve gingivitis, stomatitis, and inflammation of the tongue.
- The juice is given to prevent common cold.
- It is given to prevent or treat urinary tract infection and gonorrhoea.
- It is applied to the sites of bites and stings of certain insects to relieve its poison and pain.
- Lemon juice with a pinch of salt (warm) every morning lowers cholesterol levels and brings down your weight.
- It is the best drink to prevent dehydration and shock in case of diarrhoea.
- It can also be used as a mouthwash to remove plaque, whiten the teeth and strengthen the enamel.
- A table spoon of thick lemon syrup everyday relieves asthma.
- It relieves itchy skin.
- Gargling lemon juice relieves throat infection and also used as a treatment for diphtheria.
- It helps to prevent and cure osteoarthritis.



Medicinal benefits of grapefruits

- Grapefruits are also an excellent source of vitamin A, an essential vitamin that helps promote healthy vision.

- **Grapefruit as Liver Cleanser**

Grapefruit contains a number of liver detoxifying and cleansing agents, among them are various antioxidants and phyto-nutrients called limonoids that help to excrete toxic waste from the liver by making them more water soluble.

- **Grapefruit for Gum Problems:**

Eating two grapefruits a day helps to reduce gum bleeding. It also increases plasma vitamin C levels and helps to manage periodontal disease.

- **Grapefruit for Respiratory Problems:**

Vitamin C has been proven in numerous studies to lessen respiratory issues and prevent asthma. It also reduces wheezing symptoms in children and aids in treating asthma, chronic cough, shortness of breath and even runny nose. The presence of several vitamin and minerals in grapefruit also helps to boost immunity and lessens the duration of cold.

Medicinal value of orange

- Sweet orange also contains large amounts of potassium which may help prevent high blood pressure and stroke.
- It is used to prevent kidney stones because they contain large amounts of a chemical called citrate which tends to bind with calcium before it can form kidney stones.
- It helps fight colds and flu.
- Helps prevent cancer
- Prevents kidney diseases and reduces risk of liver cancer
- Lowers cholesterol and boosts heart health
- Lowers risk of disease and fights against viral infections
- Relieves constipation and helps create good vision

PC (b) State nutritional values of citrus

Nutritional facts about citrus fruits

Citrus is most commonly thought of as a good source of vitamin C. Citrus fruits also contain an impressive list of other essential nutrients, including both glycaemic and non-glycaemic carbohydrate (sugars and fibre), potassium, folate, calcium, thiamine, niacin, vitamin B6, phosphorus, magnesium, copper, riboflavin, pantothenic acid and a variety of phytochemicals.

In addition, citrus contains no fat or sodium and being a plant food, no cholesterol. The average energy value of fresh citrus is also low which can be very important for consumers concerned about putting on excess body weight. For example a medium orange contains 60 to 80 kcal; a grapefruit 90 kcal and a tablespoon (15 ml) of lemon juice only 4 kcal (see Table below for details)

	Orange (131g of weight)	Grapefruit (236 g of weight)	Tangerine (84g of weight)
Energy (kcal)	62	78	37
Fibre content (g)	3.1	2.5	1.7
Ascorbic acid (mg)	70	79	26
Folate (mcg)	40	24	17
Potassium (mg)	237	350	132

Source: (FAO, 2014)

PC (c) State the cosmetic values of citrus.

Cosmetic values of citrus fruits Lemon:

- The skin of lemon dried under the sun and then ground to make powder can be applied to the hair for a few minutes before bath which relieves head ache and cools the body.
- Applying lemon juice to acne dries the existing ones and prevents from getting more. It gives a glow to the skin and soothes the dry skin when mixed with glycerine.
- It acts as a natural hair lightener and skin bleach which reduces the pigment melanin and prevents the risk of chemical allergic reactions which is common with hair dyes and bleaches.
- It is an excellent treatment for dandruff and greasy hair.
- It removes wrinkles and keeps one young.

Orange:

- Orange acts as a skin tonner: during the hot summer days, when the harsh and harmful rays of the sun are damaging the skin.
- It cures acne: orange is rich in citric acid, an excellent material to cure acne.
- Prevents wrinkles: orange has superb anti-aging qualities. The age reversing antioxidants present in it helps to prevent wrinkles.
- Detoxifies the skin: orange does the work of detoxifying the toxin from the skins making the skin look fresher and brighter.
- It prevents the skin from skin cancer.



Self-assessment

PC (b)

1. State the average nutritional values for the following citrus fruits

Type of citrus	Average nutritional value
Lemon	
Grapefruit	
Tangerine	
Lime	

Demonstrate knowledge of economic value of citrus.

In this LO, you will learn about the employment opportunities in citrus farming, identify inputs for citrus production and explain the economic importance of citrus by-products

PC (a) Explain employment opportunities in citrus farming.

Citrus farming is an avenue that presents various employment opportunities from nursery, pack house management and processing.

Below is a list of employment opportunities under the major areas in citrus production.

NURSERY	PACK HOUSE	PROCESSING
<ul style="list-style-type: none"> • Sales manager • Accountant, account clerks • Nursery manager 	<ul style="list-style-type: none"> • Inventory analyst • IT technician • Receiving supervisor • Distributor • Manager • Farm shop mechanic • Data analyst 	<ul style="list-style-type: none"> • Production planner • Engineer • Chemist • Quality controller

PC (b) Identify inputs for citrus production.

Inputs for citrus production

- Land
- Money
- Labour
- Planting materials
- Tools and equipment
- Agro-chemicals

PC (c) Explain the economic importance of citrus by-products.

Economic importance of citrus by-products

The by-products of citrus are:

- Seed
- Pulp
- Rind/peel

The table below shows the economic importance of citrus by-products.

PEEL	PULP	SEEDS
<ul style="list-style-type: none">• For cosmetic products: oil, perfumes• For insecticides• Citrus peels contain high levels of antioxidants that contribute to the protection of DNA from cancer.	<ul style="list-style-type: none">• Animal feed: used as feed for cattle and ruminants• Cleaning metals	Medicine: lemon seeds have antiseptic properties which make them great when it comes to treating and/or preventing various fungal problems (for instance candidiasis).



Self-assessment

Pc (b)

1. Briefly explain the following factors in citrus production.

i. Land

.....
.....
.....

ii. Money

.....
.....
.....

iii. Labour

.....
.....
.....

2. Explain the uses of the following inputs for citrus production.

i. Agro-Chemical

.....
.....
.....

ii. Tools and equipment

.....
.....
.....

