



# FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

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## Brochure

AGRO-INPUT PACKAGES FOR GHANA

 **PAIRED** **EnGRAIS**  
led by CORAF



**USAID**  
FROM THE AMERICAN PEOPLE




## Introduction

Poor agricultural productivity in West African countries and Chad is partly related to the insufficient use of suitable agricultural inputs, including improved seed varieties and appropriate fertilizers. Indeed, it is generally said that in this region the rate of coverage of quality certified seed requirements is still around 25% and that the average amount of nutrients used in ECOWAS region is about 17 kg/ha of nutrients less than half of the 50 kg/ha set to be achieved by 2015 as advocated by the Abuja Summit of June 2006, below the 24 kg/ha of nutrients on average for Africa and far below the world average of 123 kg per hectare of nutrients. Among the many reasons that have caused this situation is the poor availability and accessibility of quality inputs and poor access to agricultural extensions services, to knowledge and in short to accurate information about agricultural inputs.

The Feed the Future Partnership for Agricultural Research, Education and Development (PAIRED) and Enhancing Growth through Regional Agricultural Inputs Systems (EnGRAIS) are two, five-year (2017-2022 and 2018-2023, respectively) projects funded by the United States Agency for International Development West Africa Regional Mission (USAID/WA) and implemented by the West and Central African Council for Agricultural Research and Development (CORAF) and the International Fertilizer Development Center (IFDC), respectively. PAIRED and EnGRAIS, within the framework of their close cooperation and backed by their implementers, have a common objective to develop and make available to West African producers and other agricultural sector actors both agricultural input packages (AIPs) and an online platform as decision making tools. The AIPs contain information on locally adapted improved seeds, appropriate fertilizers, and information on good agricultural practices (GAPs) specific to each crop variety and agro-ecological zone (AEZ) across West Africa and Chad designed to boost agricultural yields and productivity.

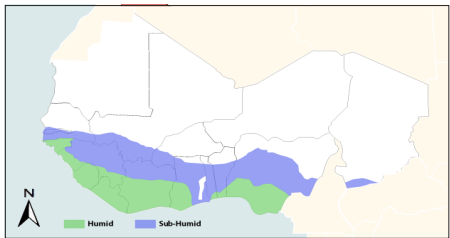
EnGRAIS and PAIRED projects, have a common objective that aims to develop and make available to producers in West Africa AIPs and an online platform that will enable the actors of the agricultural sector to have information on improved seeds, appropriate fertilizer recommendations and GAPs for the main crops of the region according to the different AEZs to boost agricultural yields and productivity. To this end, they have developed AIPs and the Fertilizer and Seed Recommendations for West Africa Map, (FeSeRWAM) platform ([www.feserwam.org](http://www.feserwam.org)). The FeSeRWAM platform is the successor of the Fertilizer recommendations for West Africa Map, (FeRWAM), and will be deployed online as well as the associated AIPs, to be available to all stakeholders. The AIPs are embedded in the FeSeRWAM platform, accessible online via internet, cell phones, computers and several other means of dissemination are planned.

EnGRAIS and PAIRED to ensure that access to online documents is not a hindrance for the main targets which are private and public extension agents, fertilizer, and seed dealers have decided to produce these catalogs that can be used in the field to sensitize, advise and train the end users which are farmers. Therefore, country catalogs have been developed and a regional catalog which partly covers the region for this first Version 1.1 but whose goal is to cover all the countries of

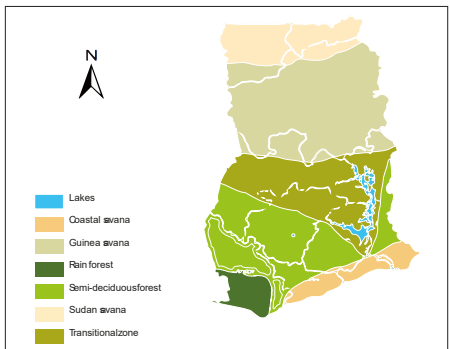


the ECOWAS area, Chad, and Mauritania. These country catalogs and the regional one is of course likely to be revised periodically to consider new technologies but also the demand of the beneficiaries.

In the country as well as regional booklet, the AIPs are organized by crop. The booklet is a synthesis of the most relevant technical information with some illustrations to guide the technicians in their dialogue with the producers so that, depending on his specific locality, the producer can produce efficiently through judicious choices of crops seed/ varieties, appropriate fertilizers, GAP's and have a good technical instruction that will guide them to obtain optimal production. For this reason, the AIP booklet provides information on the Crop (varieties, varietal characteristics, local names, performance, and resistance to various constraints), Fertilizer (nutrient recommendations, type of fertilizer, rates, periods, mode of application and appropriate organic fertilizer) , Crop Management ( tillage, water management, weed management, crop residue management, management of organic manure and organo-mineral amendments), and the Locality( regional AEZ, country AEZ, specific locations and many other relevant information).



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SUB-HUMID AND HUMID

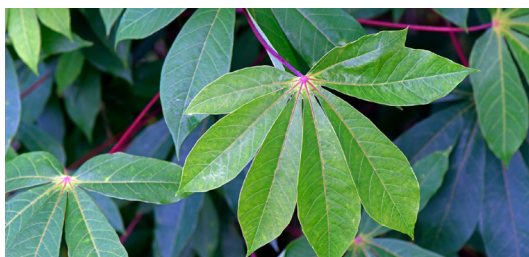


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
COASTAL SAVANNA, RAIN FOREST AND TRANSITION ZONE

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cassava
Variety Name	Abasafita
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	60
Seed unit	bundles/ha
Spacing	1 m x 1 m
Grain Color	Outer skin colour: dark greyish; inner skin colour: light greyish; mature stem colour: greyish
Sowing/Planting Period	April-July
Production System	Rainfed
Number of days sowing/planting - maturity	365-455
Potential yield	29-35 tonnes/ha
Country average	29-35 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Tolerant to Cassava Mosaic Virus (CMV)
Nutritional quality	
Other qualities	Used for starch, flour and gari



## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 17-10-10 (6 bags of 50 kg /ha)
Time of Application:	Apply 3 bags 1 month after planting and 3 bags 3 months after planting
Application rate:	100 kg of Urea (2 bags of 50 kg /ha)
Time of Application:	Apply after 6 months

## NUTRIENT RECOMMENDATION

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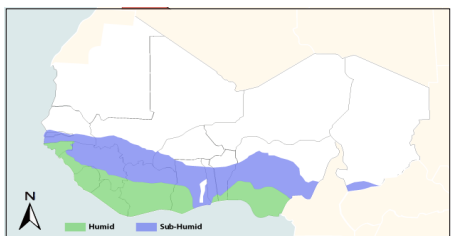
## ORGANIC FERTILIZER RECOMMENDATION

Time of Application: When possible

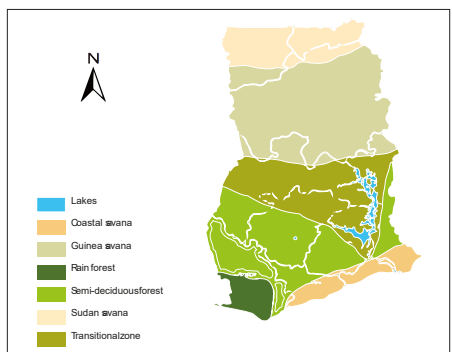


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Apply mulch to conserve soil and moisture, ridging, mounding and on the flat. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side Placement by burrying and banding
Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate
Water management	See "Soil and Water Conservation Techniques"
Pest management	Control pest when necessary. Scout for grasshoppers, mealybugs, locust and rodents
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SUB-HUMID AND HUMID**



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**ALL AGROECOLOGY (SEMI-DECIDUOUS FOREST, RAIN FOREST, COASTAL SAVANNAH, GUINEA SAVANNAH)**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cassava
Variety Name	Afisiafi
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	60
Seed unit	bundles/ha
Spacing	1 m x 1 m
Grain/Flesh Color	Outer skin of root: pale redish brown; mature stem colour: greenish brown
Sowing/Planting Period	April-July
Production System	Rainfed
Number of days sowing/planting - maturity	365-455
Potential yield	28-35 tonnes/ha
Country average	28-35 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Tolerant to Cassava Mosaic Virus (CMV)
Nutritional quality	



## FERTILIZER SPECIFICATION

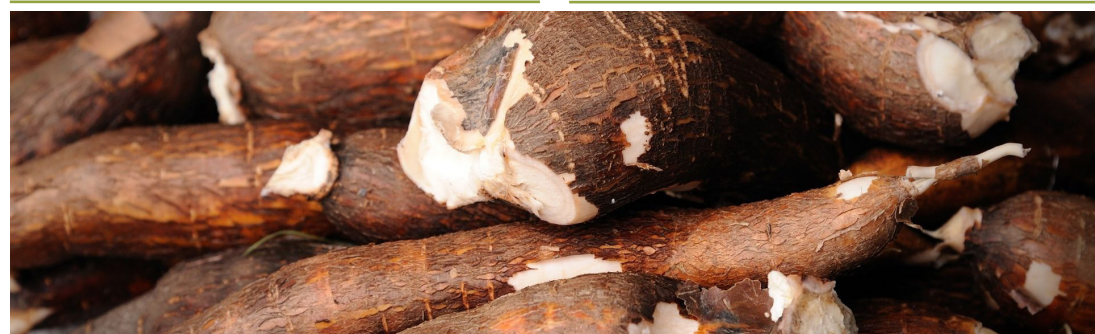
Application rate:	300 kg of NPK 17-10-10 (6 bags of 50 kg /ha)
Time of Application:	Apply 3 bags 1 month after planting and 3 bags 3 months after planting
Application rate:	100 kg of Urea (2 bags of 50 kg /ha)
Time of Application:	Apply after 6 months

## NUTRIENT RECOMMENDATION

100N-30P2O5-30K2O

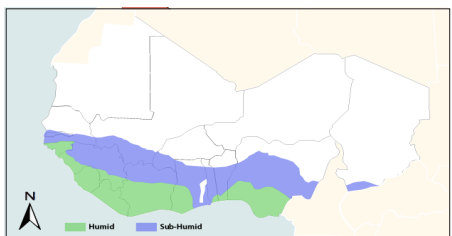
## ORGANIC FERTILIZER RECOMMENDATION

Time of Application: When possible

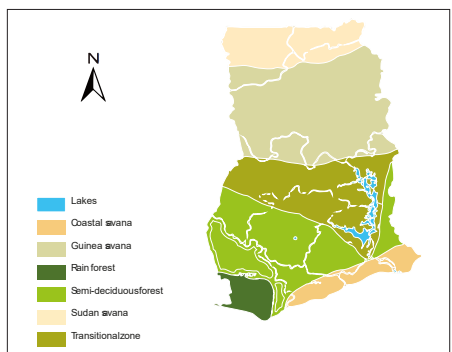


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Apply mulch to conserve soil and moisture, ridging, mounding and on the flat. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side Placement by burrying and banding
Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate
Water management	See "Soil and Water Conservation Techniques"
Pest management	Control pest when necessary. Scout for grasshoppers, mealybugs, locust and rodents
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted



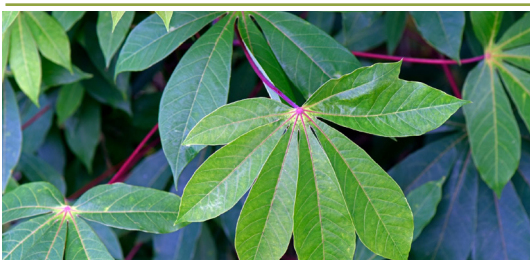
WEST AFRICA AGRO-ECOLOGICAL ZONE  
SUB-HUMID AND HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
COASTAL SAVANNA, RAIN FOREST AND TRANSITION ZONE  
Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cassava
Variety Name	CRI-Ampong
Local name	Ampong
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	60
Seed unit	bundles/ha
Spacing	1 m x 1 m
Grain/Flesh Color	Root skin colour: deep brown
Sowing/Planting Period	April-July
Production System	Rainfed
Number of days sowing/planting - maturity	365-455
Potential yield	45 tonnes/ha
Country average	45 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Resistant to Cassava Mosaic Virus (CMV)
Nutritional quality	
Other qualities	Good for flour, starch and poundable.



## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 17-10-10 (6 bags of 50 kg /ha)
Time of Application:	Apply 3 bags 1 month after planting and 3 bags 3 months after planting
Application rate:	100 kg of Urea (2 bags of 50 kg /ha)
Time of Application:	Apply after 6 months

## NUTRIENT RECOMMENDATION

Application rate:	100N-30P2O5-30K2O
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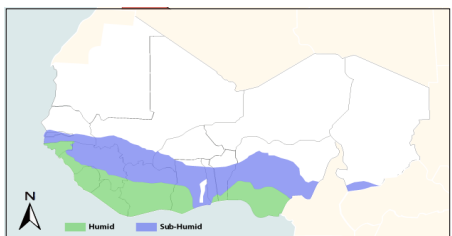
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

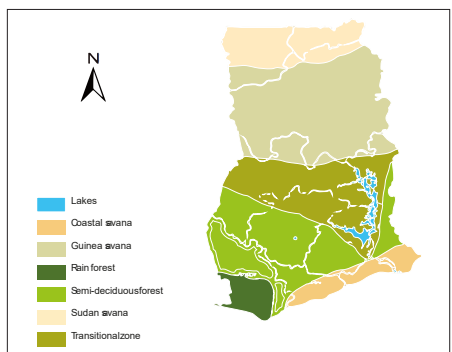


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Apply mulch to conserve soil and moisture, ridging, mounding and on the flat. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side Placement by burrying and banding
Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate
Water management	See "Soil and Water Conservation Techniques"
Pest management	Control pest when necessary. Scout for grasshoppers, mealybugs, locust and rodents
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SUB-HUMID AND HUMID

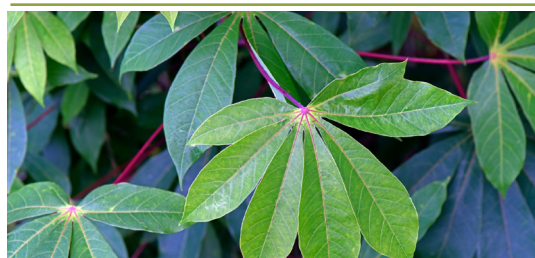


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
COASTAL SAVANNA, RAIN FOREST AND TRANSITION ZONE

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cassava
Variety Name	CRI-Bankye Hema
Local name	Bankyehema
Synonym	
Variety Type	Pure line
Quantity of seed (kg/hectare)	60
Seed unit	bundles/ha
Spacing	1 m x 1 m
Grain/Flesh Colour	Root skin colour: greyish orange, Stem colour: brownish
Sowing/Planting Period	April - July
Production System	Rainfed
Number of days sowing/planting - maturity	365-455
Potential yield	48 tonnes/ha
Country average	48 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	
Other qualities	21% starch and good for fufu and bakery products.



## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 17-10-10 (6 bags of 50 kg /ha)
Time of Application:	Apply 3 bags 1 month after planting and 3 bags 3 months after planting
Application rate:	100 kg of Urea (2 bags of 50 kg /ha)
Time of Application:	Apply after 6 months

## NUTRIENT RECOMMENDATION

Application rate:	100N-30P2O5-30K2O
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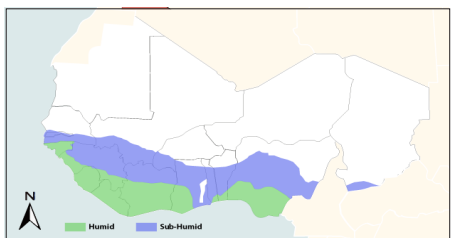
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

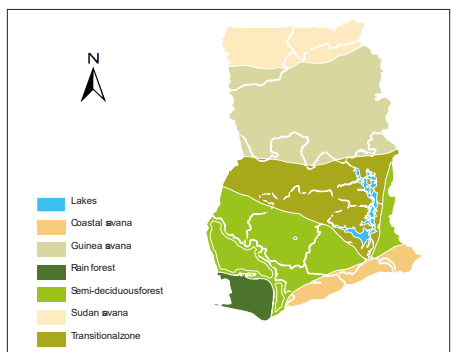


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Apply mulch to conserve soil and moisture, ridging, mounding and on the flat. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side Placement by burying and banding
Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate
Water management	See "Soil and Water Conservation Techniques"
Pest management	Control pest when necessary. Scout for grasshoppers, mealybugs, locust and rodents
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SUB-HUMID AND HUMID

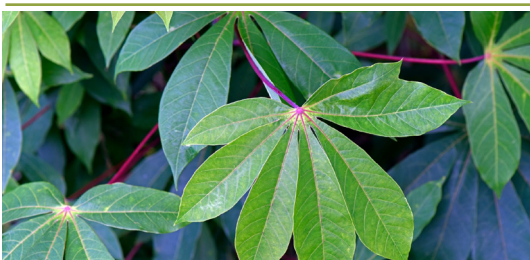


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
COASTAL SAVANNA, RAIN FOREST AND TRANSITION ZONE

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Variety Name	CRI-Doku Duade
Local name	Doku duade
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	60
Seed unit	bundles/ha
Spacing	1m x 1m
Grain/Flesh Colour	Root skin colour: light orange
Sowing/Planting Period	April-July
Production System	Rainfed
Number of days sowing/planting - maturity	365-455
Potential yield	45 tonnes/ha
Country average	45 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	
Other qualities	24% starch and good starch production
Other qualities	21% starch and good for fufu and bakery products.



## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 17-10-10 (6 bags of 50 kg /ha)
Time of Application:	Apply 3 bags 1 month after planting and 3 bags 3 months after planting
Application rate:	100 kg of Urea (2 bags of 50 kg /ha)
Time of Application:	Apply after 6 months

## NUTRIENT RECOMMENDATION

Application rate:	100N-30P2O5-30K2O
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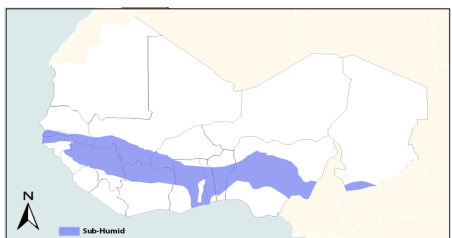
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

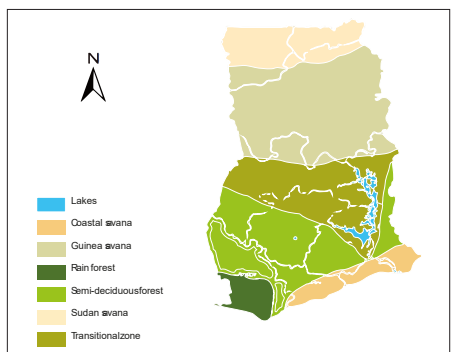


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Apply mulch to conserve soil and moisture, ridging, mounding and on the flat. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side Placement by burying and banding
Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate
Water management	See "Soil and Water Conservation Techniques"
Pest management	Control pest when necessary. Scout for grasshoppers, mealybugs, locust and rodents
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SUB-HUMID**

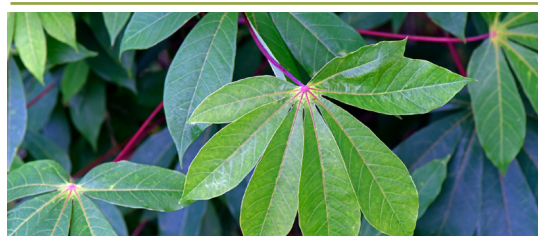


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cassava
Variety Name	Eskamaye
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	60
Seed unit	bundles/ha
Spacing	1 m x 1 m
Grain/Flesh Color	Stem colour is greenish grey
Sowing/Planting Period	April-July
Production System	Rainfed
Number of days sowing/planting - maturity	240-365
Potential yield	16-23 tonnes/ha
Country average	16-23 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	
Other qualities	Gari swelling ability: High; Poundability: not poundable in the dry season; Uses: Tuo Zaafi, gari, flour and starch



## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 17-10-10 (6 bags of 50 kg /ha)
Time of Application:	Apply 3 bags 1 month after planting and 3 bags 3 months after planting
Application rate:	100 kg of Urea (2 bags of 50 kg /ha)
Time of Application:	Apply after 6 months

## NUTRIENT RECOMMENDATION

100N-30P2O5-30K2O

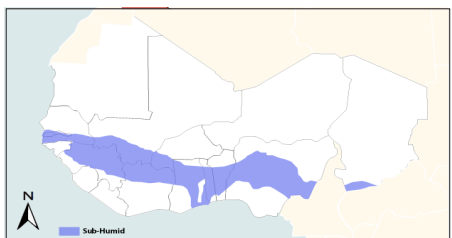
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

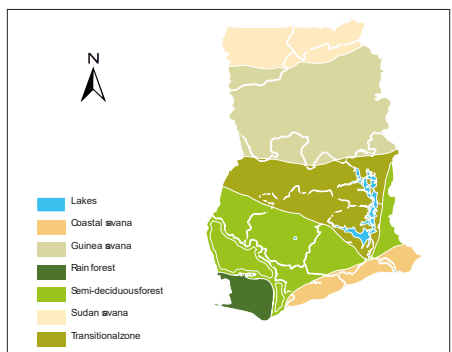


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Apply mulch to conserve soil and moisture, ridging, mounding and on the flat. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side Placement by burrying and banding
Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate
Water management	See "Soil and Water Conservation Techniques"
Pest management	Control pest when necessary. Scout for grasshoppers, mealybugs, locust and rodents
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SUB-HUMID**

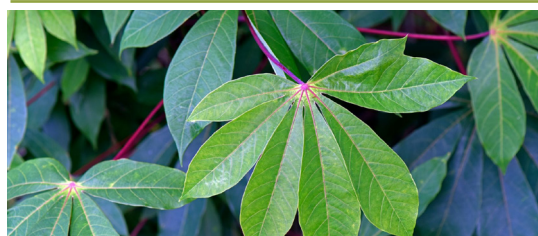


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cassava
Variety Name	Fil-Ndiakong
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	60
Seed unit	bundles/ha
Spacing	1 m x 1 m
Grain/Flesh Color	Stem colour: Brownish grey.
Sowing/Planting Period	April-July
Production System	Rainfed
Number of days sowing/planting - maturity	240
Potential yield	16-19 tonnes/ha
Country average	16-19 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	
Other qualities	Uses: Tuo Zaafi, gari, flour and starch; poundability: not poundable in the dry season; Sweet taste



## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 17-10-10 (6 bags of 50 kg /ha)
Time of Application:	Apply 3 bags 1 month after planting and 3 bags 3 months after planting
Application rate:	100 kg of Urea (2 bags of 50 kg /ha)
Time of Application:	Apply after 6 months

## NUTRIENT RECOMMENDATION

Application rate:	100N-30P2O5-30K2O
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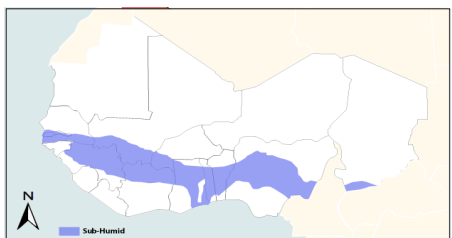
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Application rate:	Organic manure, Compost
Time of Application:	When possible

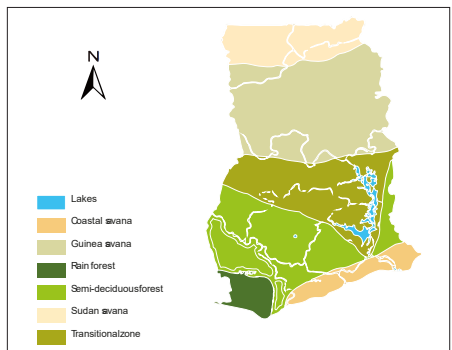


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Soil and Water Conservation Techniques	Apply mulch to conserve soil and moisture, ridging, mounding and on the flat. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side Placement by burrying and banding
Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate
Water management	See "Soil and Water Conservation Techniques"
Pest management	Control pest when necessary. Scout for grasshoppers, mealybugs, locust and rodents
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SUB-HUMID**

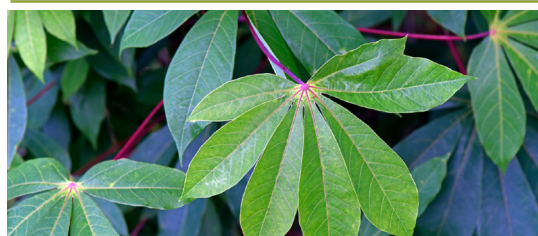


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cassava
Variety Name	CRI-Lamesese
Local name	Lamesese
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	60
Seed unit	bundles/ha
Spacing	1 m x 1 m
Grain/Flesh Color	Stem colour: Dark brown; Root skin colour: Light brown
Sowing/Planting Period	April-July
Production System	Rainfed
Number of days sowing/planting - maturity	
Potential yield	40-50 tonnes/ha
Country average	40-50 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Tolerant to CMD
Nutritional quality	
Other qualities	Fufu (poundable), Flour and Beta-Carotene



## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 17-10-10 (6 bags of 50 kg /ha)
Time of Application:	Apply 3 bags 1 month after planting and 3 bags 3 months after planting
Application rate:	100 kg of Urea (2 bags of 50 kg /ha)
Time of Application:	Apply after 6 months

## NUTRIENT RECOMMENDATION

100N-30P2O5-30K2O

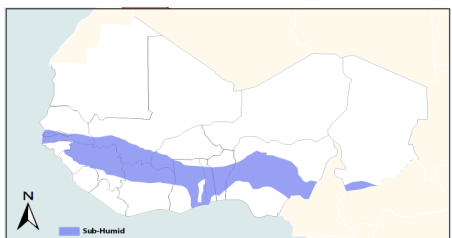
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Application rate:	Organic manure, Compost
Time of Application:	When possible

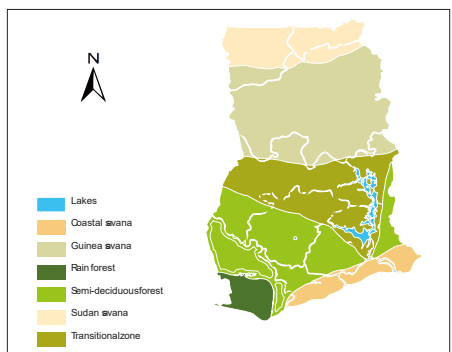


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Method of fertilizer application	Side Placement by burrying and banding
Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate
Water management	See "Soil and Water Conservation Techniques"
Pest management	Control pest when necessary. Scout for grasshoppers, mealybugs, locust and rodents
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SUB-HUMID**

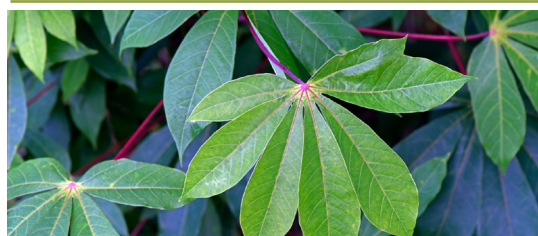


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cassava
Variety Name	Nyeri-Kobga
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	60
Seed unit	bundles/ha
Spacing	1 m x 1 m
Grain/Flesh Color	
Sowing/Planting Period	April-July
Production System	Rainfed
Number of days sowing/planting - maturity	240-365
Potential yield	17-29 tonnes/ha
Country average	17-29 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	
Other qualities	Roots are not poundable during the dry season; Uses: Tuo Zaafi, gari, flour and starch.



## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 17-10-10 (6 bags of 50 kg /ha)
Time of Application:	Apply 3 bags 1 month after planting and 3 bags 3 months after planting
Application rate:	100 kg of Urea (2 bags of 50 kg /ha)
Time of Application:	Apply after 6 months

## NUTRIENT RECOMMENDATION

100N-30P2O5-30K2O

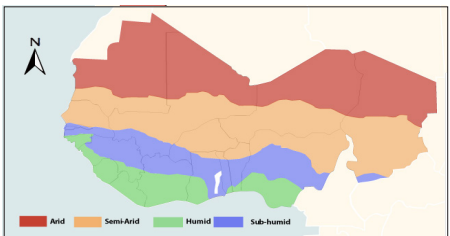
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

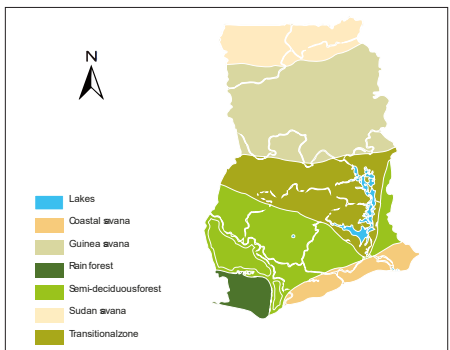


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Apply mulch to conserve soil and moisture, ridging, mounding and on the flat. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side Placement by burrying and banding
Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate
Water management	See "Soil and Water Conservation Techniques"
Pest management	Control pest when necessary. Scout for grasshoppers, mealybugs, locust and rodents
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SUB-HUMID, HUMID AND SEMI-ARIDE



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
GUINEA SAVANNA

Isohyet range 600-1800 Costal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cocoa
Variety Name	Amazon
Local name	Agric
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/ hectare)	1100
Seed unit	seedlings/ha
Spacing	3 metres apart
Grain/Flesh Color	Green (unripened)/Yellow(ripened)
Sowing/Planting Period	April-May
Production System	Rainfed
Number of days sowing/ planting - maturity	1825
Potential yield	1.3 tonnes/ha
Country average	1.3 tonnes/ha
Pest resistance	Less Pest tolerant as compared to the hybrid
Disease resistance	Less Disease tolerant as compared to the hybrid
Other stresses	
Nutritional quality	Good response to fertilizer application in cases of nutrient deficiency
Other qualities	Not recommended for planting

## NUTRIENT RECOMMENDATION

0N-80P2O5-70K2O +27S+1.25B+34CaO+23MgO or  
0N-22P2O5-18K2O+9CaO+7S+6MgO

## ORGANIC FERTILIZER RECOMMENDATION

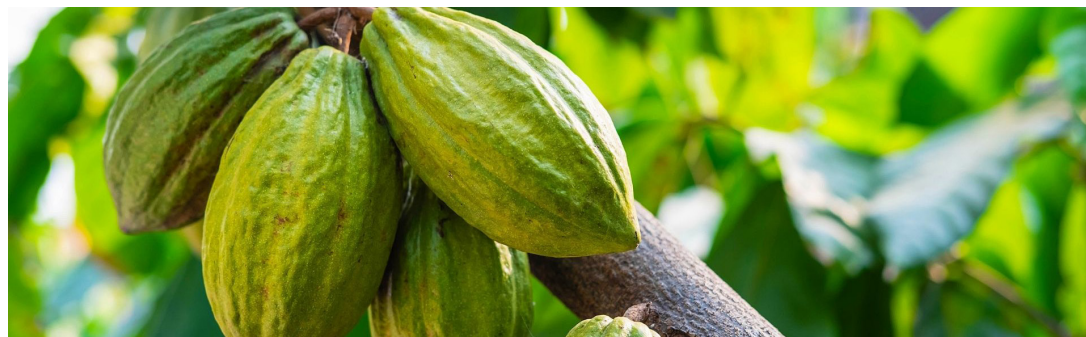
Application rate: Organic manure, Compost  
Time of Application: When possible

## FERTILIZER SPECIFICATION 1

Application rate:	375 kg of NPK 3-22-20+10CaO+6SO3+6MgO+0.5Zn+0.5B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300 kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Bio liquid Organic 0.76% N+0.09% P2O5+2.16% K2O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K2O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P2O5 10%K2O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION 2

Application rate:	375kg of NPK 2-23-18+8CaO+6SO3+6MgO+0.3Zn +0.5B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P2O5+2.16% K2O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K2O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P2O5 10%K2O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.





FERTILIZER SPECIFICATION <span style="float: right;">③</span>	
Application rate:	375 kg of NPK 5-16-15+16CaO+6S+3MgO+0.7Zn+0.3B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300 kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

FERTILIZER SPECIFICATION <span style="float: right;">④</span>	
Application rate:	375kg of NPK7-22-13+6CaO+5S+5MgO+0.1Zn+0.4B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

FERTILIZER SPECIFICATION <span style="float: right;">⑤</span>	
Application rate:	375kg of NPK 4-21-17+4.5CaO+6S+6MgO+0.5Zn+0.1B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

FERTILIZER SPECIFICATION <span style="float: right;">⑥</span>	
Application rate:	375kg of NPK 0-22-18+9CaO+7S+6MgO+0.5Zn (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.





## FERTILIZER SPECIFICATION

7

Application rate:	375 kg of NPK 7-32-20+2S+2.5MgO+6CaO (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300 kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Bio liquid Organic 0.76% N+0.09% P2O5+2.16% K2O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K2O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P2O5 10%K2O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION

8

Application rate:	375kg of NPK 7-25-18+4S+6MgO+9CaO+0.8B+1 Zn (Pause application after three consecutive years of application. )
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P2O5+2.16% K2O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K2O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P2O5 10%K2O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION

9

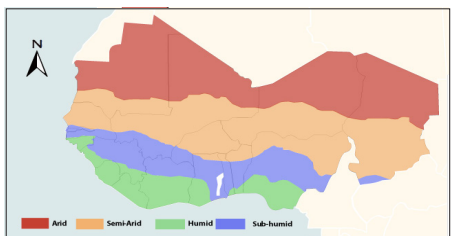
Application rate:	375kg of NPK 4-23-21+6SO3+2MgO+-12CaO+0.4B+0.1 Zn (Pause application after three consecutive years of application. )
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P2O5+2.16% K2O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K2O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P2O5 10%K2O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.



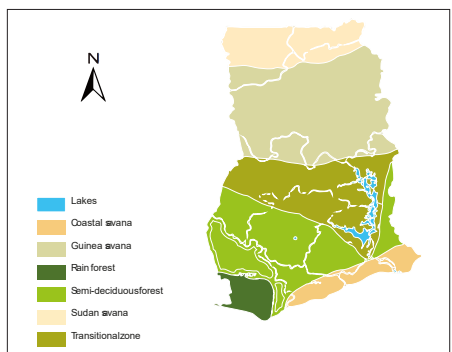
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



Soil and Water Conservation Techniques	Permanent shade trees of 15 to 18 per ha, the periodic shedding of leaves by the cocoa tree also aid in soil conservation amidst application of manure and inorganic fertilizers
Method of fertilizer application	Broadcasting and Ring Application for Young trees from 12 to 18 months
Amendments	Calcipril and Rock Phosphate and Organic Manure
Water management	Irrigation system could be adopted to mitigate the effect of varying climatic conditions
Pest management	Integrated pest management is necessary to ensure the ecosystem is not distracted
Weed Control	For newly planted cocoa, weeding is done at least four times a year while cocoa with a closed canopy requires weeding twice a year
Cropping system	Mixed cropping is adopted at the establishing stage when plantain suckers (temporary shade) and other crops are intercropped with cocoa. Cocoa being understorey crop is associated with agroforestry establishment where permanent shade trees are planted.



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SUB-HUMID, HUMID AND SEMI-ARIDE



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
GUINEA SAVANNA

Isohyet range 600-1800 Costal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION



Crop	Cocoa
Variety Name	Amelonado
Local name	Tetteh Quarshie
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/ hectare)	1100
Seed unit	seedlings/ha
Spacing	3 metres apart
Grain/Flesh Color	Green (unripened)/Yellow(ripened)
Sowing/Planting Period	April-May
Production System	Rainfed
Number of days sowing/ planting - maturity	2555
Potential yield	1.3 tonnes/ha
Country average	1.3 tonnes/ha
Pest resistance	Less Pest tolerant
Disease resistance	Less Disease tolerant
Other stresses	
Nutritional quality	Good response to fertilizer application in cases of nutrient deficiency
Other qualities	Not recommended for planting

## NUTRIENT RECOMMENDATION



0N-80P2O5-70K2O +27S+1.25B+34CaO+23MgO or  
0N-22P2O5-18K2O+9CaO+7S+6MgO

## ORGANIC FERTILIZER RECOMMENDATION



Application rate: Organic manure, Compost  
Time of Application: When possible

## FERTILIZER SPECIFICATION

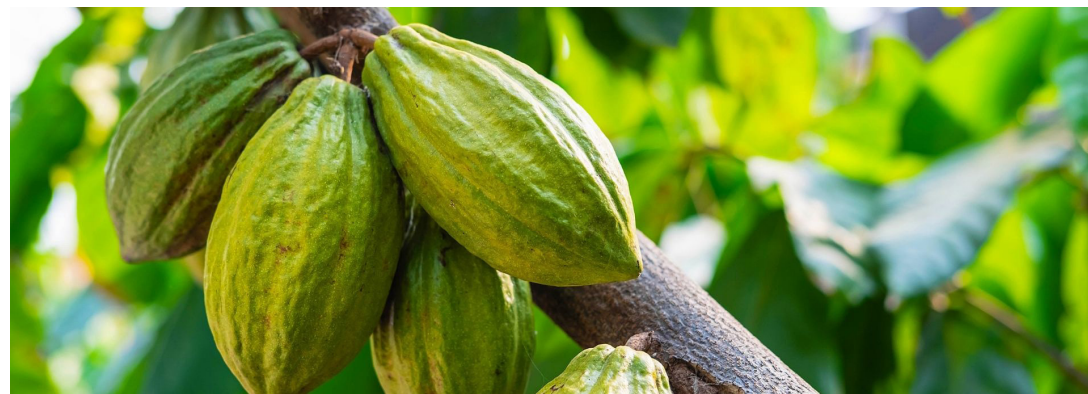


Application rate:	375 kg of NPK 3-22-20+10CaO+6SO3+6MgO+0.5Zn+0.5B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300 kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Bio liquid Organic 0.76% N+0.09% P2O5+2.16% K2O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K2O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P2O5 10%K2O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION



Application rate:	375kg of NPK 2-23-18+8CaO+6SO3+6MgO+0.3Zn +0.5B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P2O5+2.16% K2O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K2O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P2O5 10%K2O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.





## FERTILIZER SPECIFICATION

3

Application rate:	375 kg of NPK 5-16-15+16CaO+6S+3MgO+0.7Zn+0.3B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300 kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION

4

Application rate:	375kg of NPK7-22-13+6CaO+5S+5MgO+0.1Zn+0.4B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION

5

Application rate:	375kg of NPK 4-21-17+4.5CaO+6S+6MgO+0.5Zn+0.1B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION

6

Application rate:	375kg of NPK 0-22-18+9CaO+7S+6MgO+0.5Zn (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.





## FERTILIZER SPECIFICATION

7

Application rate:	375 kg of NPK 7-32-20+2S+2.5MgO+6CaO (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300 kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION

8

Application rate:	375kg of NPK 7-25-18+4S+6MgO+9CaO+0.8B+1Zn (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION

9

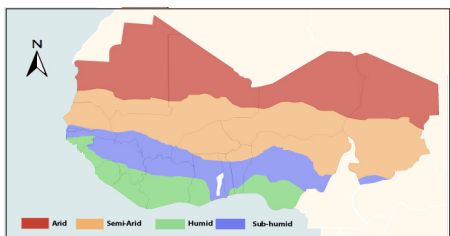
Application rate:	375kg of NPK 4-23-21+6SO <sub>3</sub> +2MgO+-12CaO+0.4B+0.1Zn (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.



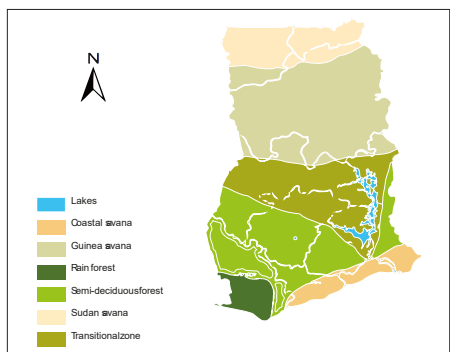
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



Soil and Water Conservation Techniques	Permanent shade trees of 15 to 18 per ha, the periodic shedding of leaves by the cocoa tree also aid in soil conservation amidst application of manure and inorganic fertilizers
Method of fertilizer application	Broadcasting and Ring Application for Young trees from 12 to 18 months
Amendments	Calcipril and Rock Phosphate and Organic Manure
Water management	Irrigation system could be adopted to mitigate the effect of varying climatic conditions
Pest management	Integrated pest management is necessary to ensure the ecosystem is not distracted
Weed Control	For newly planted cocoa, weeding is done at least four times a year while cocoa with a closed canopy requires weeding twice a year
Cropping system	Mixed cropping is adopted at the establishing stage when plantain suckers (temporary shade) and other crops are intercropped with cocoa. Cocoa being understorey crop is associated with agroforestry establishment where permanent shade trees are planted.



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SUB-HUMID, HUMID AND SEMI-ARIDE



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
GUINEA SAVANNA

Isohyet range 600-1800 Costal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION



Crop	Cocoa
Variety Name	Hybrid
Local name	Akokorabedi
Synonym	Asontem
Variety Type	Hybrid
Quantity of seed (kg/ hectare)	1100
Seed unit	seedlings/ha
Spacing	3 metres apart
Grain/Flesh Color	Green (unripened)/Yellow(ripened)
Sowing/Planting Period	April-May
Production System	Rainfed
Number of days sowing/ planting - maturity	913
Potential yield	1.3
Country average	1.3
Pest resistance	Pest tolerant (Capsid and myriids)
Disease resistance	Cocoa Swollen Shoot Virus Disease (CSSVD). Able to tolerate Cocoa Swollen Shoot Virus Disease which is a major threat to the sustainability of the cocoa industry
Other stresses	Drought tolerant
Nutritional quality	Good response to fertilizer application in cases of nutrient deficiency. Highly recommended for planting.
Other qualities	Early yielding

## NUTRIENT RECOMMENDATION



0N-80P2O5-70K2O +27S+1.25B+34CaO+23MgO or  
0N-22P2O5-18K2O+9CaO+7S+6MgO

## ORGANIC FERTILIZER RECOMMENDATION



Application rate: Organic manure, Compost  
Time of Application: When possible

## FERTILIZER SPECIFICATION

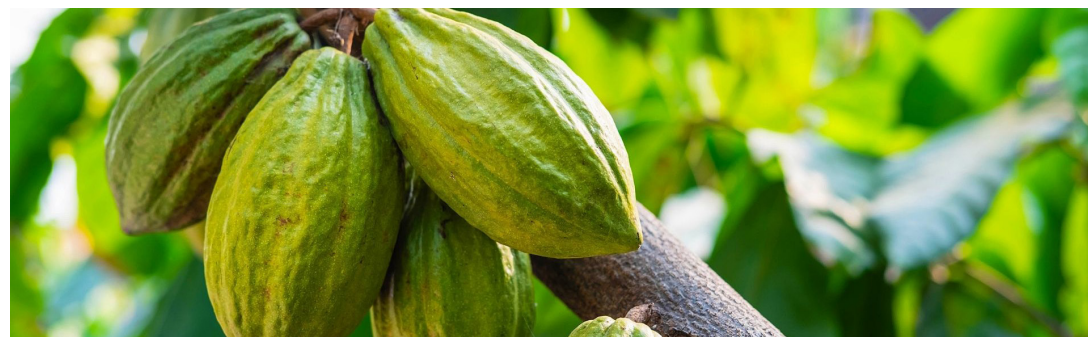


Application rate:	375 kg of NPK 3-22-20+10CaO+6SO3+6MgO+0.5Zn+0.5B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300 kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Bio liquid Organic 0.76% N+0.09% P2O5+2.16% K2O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K2O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P2O5 10%K2O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION



Application rate:	375kg of NPK 2-23-18+8CaO+6SO3+6MgO+0.3Zn +0.5B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P2O5+2.16% K2O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K2O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P2O5 10%K2O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.





## FERTILIZER SPECIFICATION

3

Application rate:	375 kg of NPK 5-16-15+16CaO+6S+3MgO+0.7Zn+0.3B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300 kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION

4

Application rate:	375kg of NPK7-22-13+6CaO+5S+5MgO+0.1Zn+0.4B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION

5

Application rate:	375kg of NPK 4-21-17+4.5CaO+6S+6MgO+0.5Zn+0.1B (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION

6

Application rate:	375kg of NPK 0-22-18+9CaO+7S+6MgO+0.5Zn (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.





## FERTILIZER SPECIFICATION

7

Application rate:	375 kg of NPK 7-32-20+2S+2.5MgO+6CaO (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300 kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION

8

Application rate:	375kg of NPK 7-25-18+4S+6MgO+9CaO+0.8B+1 Zn (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.

## FERTILIZER SPECIFICATION

9

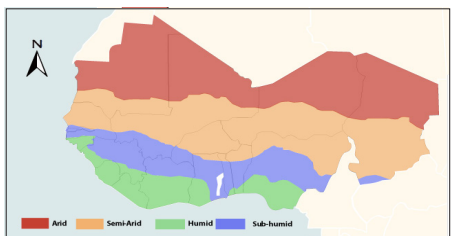
Application rate:	375kg of NPK 4-23-21+6SO <sub>3</sub> +2MgO+-12CaO+0.4B+0.1 Zn (Pause application after three consecutive years of application.)
Time of Application:	Once a year. Between April/May/June.
Application rate:	300kg of NPK 10-8-10+0.016% B+0.004% Cu+0.02% Zn (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300kg of Bio liquid Organic 0.76% N+0.09% P <sub>2</sub> O <sub>5</sub> +2.16% K <sub>2</sub> O+0.48% Ca+0.57% Mg+ 6.28% Organic carbon (For both young and mature cocoa depending on nutrient specification)
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Application rate:	300 kg of Kelik Potassium 50% K <sub>2</sub> O +4.5% EDTA (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	300 kg of Florone 1%N 10%P <sub>2</sub> O <sub>5</sub> 10%K <sub>2</sub> O + 0.25% B + 0.02%Mo + 4% amino acids (For both young and mature cocoa depending on nutrient specification)
Time of Application:	Starts from April or onset of the rain. Four consecutive months. 200-300mls/ha for a month
Application rate:	150kg/ha of Ammonium sulphate (For young cocoa (from planting to 18 months)
Time of Application:	Once a year. Preferably between April/May/June.



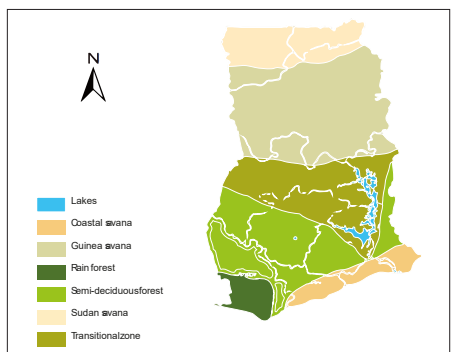
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



Soil and Water Conservation Techniques	Permanent shade trees of 15 to 18 per ha, the periodic shedding of leaves by the cocoa tree also aid in soil conservation amidst application of manure and inorganic fertilizers
Method of fertilizer application	Broadcasting and Ring Application for Young trees from 12 to 18 months
Amendments	Calcipril and Rock Phosphate and Organic Manure
Water management	Irrigation system could be adopted to mitigate the effect of varying climatic conditions
Pest management	Integrated pest management is necessary to ensure the ecosystem is not distracted
Weed Control	For newly planted cocoa, weeding is done at least four times a year while cocoa with a closed canopy requires weeding twice a year
Cropping system	Mixed cropping is adopted at the establishing stage when plantain suckers (temporary shade) and other crops are intercropped with cocoa. Cocoa being understorey crop is associated with agroforestry establishment where permanent shade trees are planted.



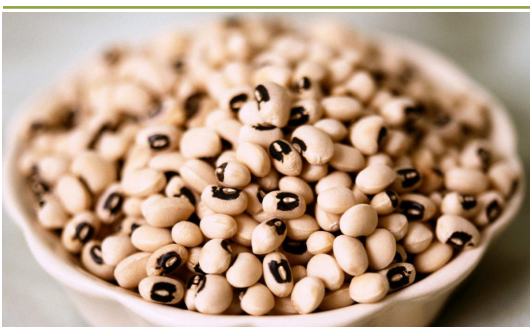
WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA, GUINEA SAVANNA, TRANSITION ZONE AND COASTAL SAVANNA  
Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cowpea
Variety name	Apaagbala
Local name	Beans
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	15
Seed Unit	kg/ha
Spacing	60 cm x 10 cm
Grain/Flesh Color	White with black eye
Planting / Sowing Time	"July - August March - April in the south of the country"
Production System	Rainfed
Number of days from sowing / planting to maturity	64-67
Potential Yield	2
Country Average	2
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	
Other qualities	



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13+3S+3MgO+6CaO+0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S+1Zn+1B (3 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+1.2Zn For farm specific recommendations, farmers should conduct soil testing"  
"20N-60P2O5-30K2O+1.2Zn For farm specific recommendations, farmers should conduct soil testing"

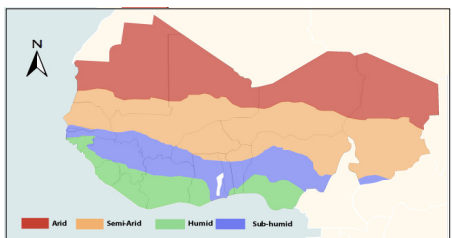
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants
Time of Application:	When possible

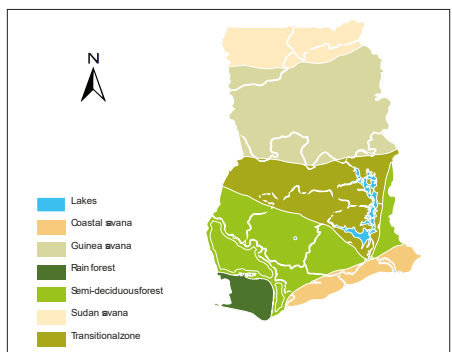


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended"
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted



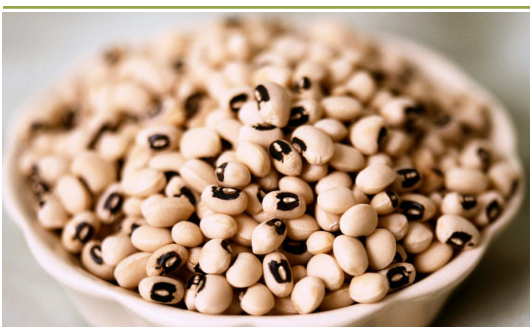
WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA, GUINEA SAVANNA, TRANSITION ZONE AND COASTAL SAVANNA  
Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cowpea
Variety name	Bengpla
Local name	Beans
Synonym	
Variety Type	Pure line
Quantity of seed (kg/hectare)	15
Seed Unit	kg/ha
Spacing	60 cm x 10 cm
Grain/Flesh Color	White with black eye
Planting / Sowing Time	"July - August March - April in the south of the country"
Production System	Rainfed
Number of days from sowing / planting to maturity	55-60
Potential Yield	1.5 tonnes/ha
Country Average	1.5 tonnes/ha
Pest resistance	
Disease resistance	Susceptible to cowpea stem rot
Other stresses	
Nutritional quality	
Other qualities	High grain/fodder yields



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13+3S+3MgO+6CaO+0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S+1Zn+1B (3 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+1.2Zn  
For farm specific recommendations, farmers should conduct soil testing"

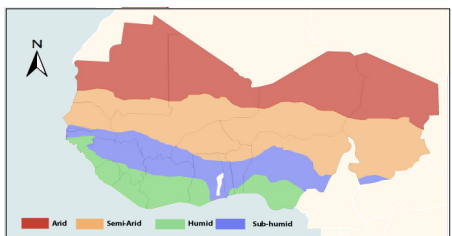
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants
Time of Application:	When possible

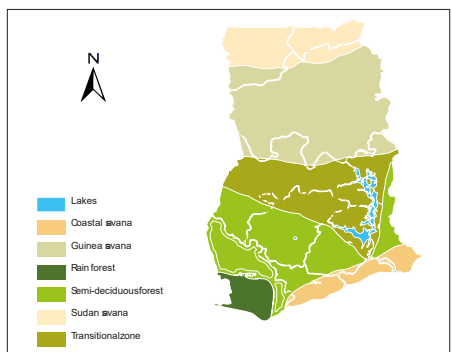


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended "
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	"Rotate with cereals Intercropping with cereals in small holdings"



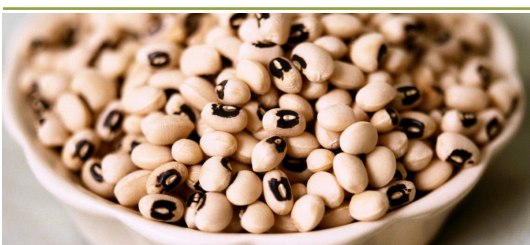
WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA, GUINEA SAVANNA, TRANSITION ZONE AND COASTAL SAVANNA  
Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cowpea
Variety name	Hewale
Local name	Beans
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	15
Seed Unit	kg/ha
Spacing	60 cm x 10 cm
Grain/Flesh Color	White with brown eye
Planting / Sowing Time	"July - August March - April in the south of the country"
Production System	Rainfed
Number of days from sowing / planting to maturity	64-72
Potential Yield	3.1 tonnes/ha
Country Average	3.1 tonnes/ha
Pest resistance	Moderately; tolerant to insect- pests especially thrips
Disease resistance	Moderately tolerant to Cercospora leaf spot and other important diseases
Other stresses	
Nutritional quality	
Other qualities	High market premium



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13+3S+3MgO+6CaO+0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S+1Zn+1B (3 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+1.2Zn  
For farm specific recommendations, farmers should conduct soil testing"

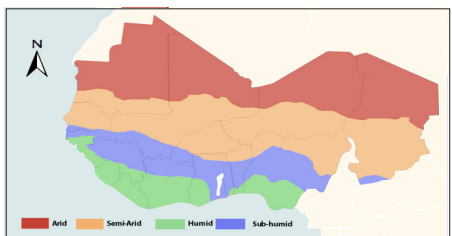
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants
Time of Application:	When possible

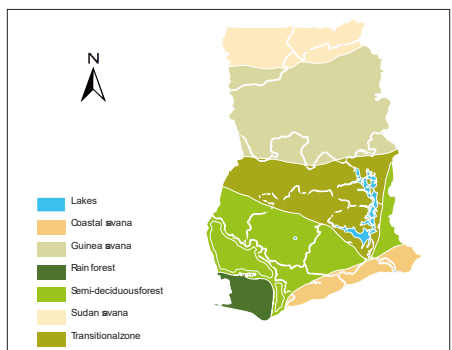


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended "
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	"Rotate with cereals Intercropping with cereals in small holdings"



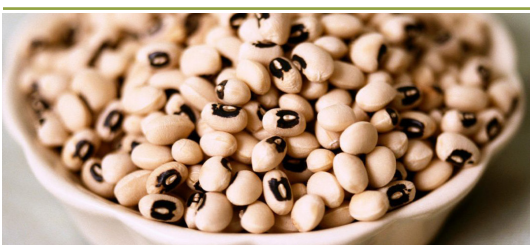
WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA, GUINEA SAVANNA, TRANSITION ZONE AND COASTAL SAVANNA  
Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cowpea
Variety name	Kirkhouse Benga - I
Local name	Beans
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	15
Seed Unit	kg/ha
Spacing	60 cm x 10 cm
Grain/Flesh Color	White with black eye
Planting / Sowing Time	"July - August March - April in the south of the country"
Production System	Rainfed
Number of days from sowing / planting to maturity	62- 65
Potential Yield	2.4 tonnes/ha
Country Average	2.4 tonnes/ha
Pest resistance	Highly resistant to Aphis craccivora; Resistant to Striga gesnerioides
Disease resistance	
Other stresses	Moderately tolerant to drought
Nutritional quality	Protein content: 23.88 g/100g; Iron content: 6.08 mg/100g
Other qualities	



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13+3S+3MgO+6CaO+0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S+1Zn+1B (3 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+1.2Zn  
For farm specific recommendations, farmers should conduct soil testing"

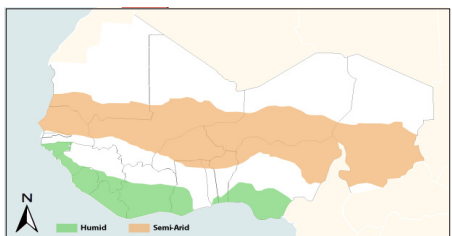
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants
Time of Application:	When possible

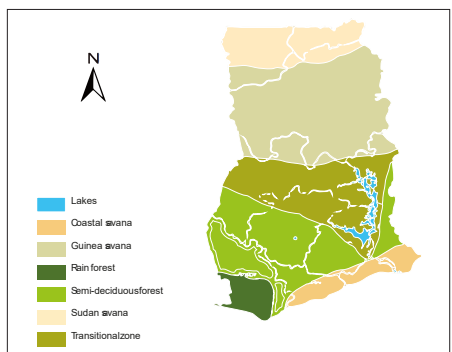


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended "
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	"Rotate with cereals Intercropping with cereals in small holdings"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SEMI-ARID AND SUB-HUMID**

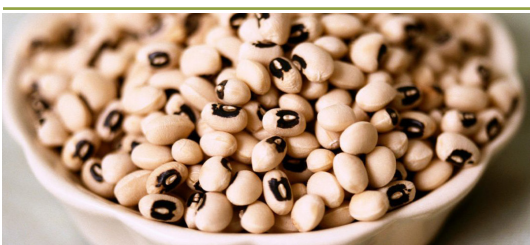


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA AND GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cowpea
Variety name	Marfo-Tuya
Local name	Beans
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	15
Seed Unit	kg/ha
Spacing	60 cm x 10 cm
Grain/Flesh Color	Dull cream luster with brown eye
Planting / Sowing Time	"July - August March - April in the south of the country"
Production System	Rainfed
Number of days from sowing / planting to maturity	66-70
Potential Yield	2.5 tonnes/ha
Country Average	2.5 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Tolerant to heat during reproductive development and resistant to Striga gesnerioides
Nutritional quality	



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13+3S+3MgO+6CaO+0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S+1Zn+1B (3 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+1.2Zn

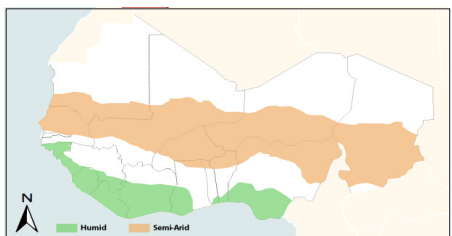
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants
Time of Application:	When possible

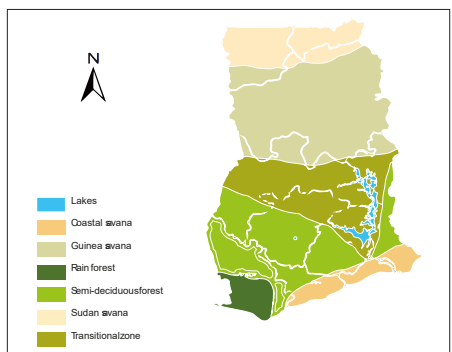


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended"
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	"Rotate with cereals Intercropping with cereals in small holdings"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SEMI-ARID AND SUB-HUMID**

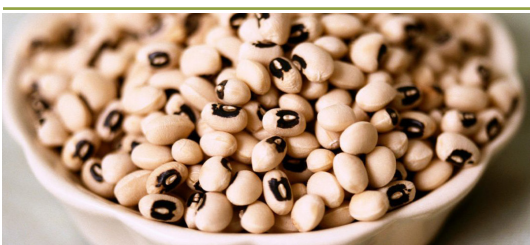


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA AND GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cowpea
Variety name	Padi-Tuya
Local name	Beans
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	15
Seed Unit	kg/ha
Spacing	60 cm x 10 cm
Grain/Flesh Color	White with black eye
Planting / Sowing Time	"July - August March - April in the south of the country"
Production System	Rainfed
Number of days from sowing / planting to maturity	64-67
Potential Yield	2.5 tonnes/ha
Country Average	2.5 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	It is moderately resistant to insects, diseases and striga
Nutritional quality	
Other qualities	



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13+3S+3MgO+6CaO+0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S+1Zn+1B (3 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+ 1.2Zn"

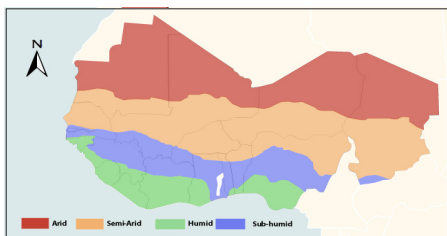
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants
Time of Application:	When possible

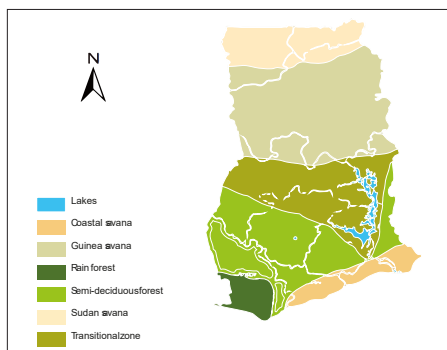


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended "
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	"Rotate with cereals Intercropping with cereals in small holdings"



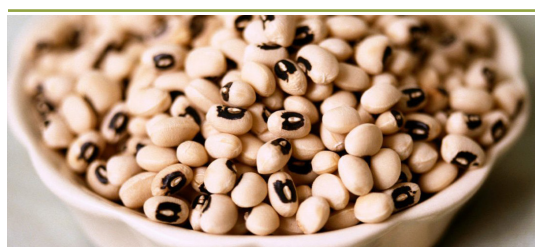
WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA, GUINEA SAVANNA, TRANSITION ZONE AND COASTAL SAVANNA  
Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cowpea
Variety name	Songotra
Local name	Beans
Synonym	
Variety Type	Pure Line
Quantity of seed (kg/hectare)	15
Seed Unit	kg/ha
Spacing	60 cm x 10 cm
Grain/Flesh Color	Creamy white with black eye
Planting / Sowing Time	"July - August March - April in the south of the country"
Production System	Rainfed
Number of days from sowing / planting to maturity	62-65
Potential Yield	2.5
Country Average	2.5
Pest resistance	
Disease resistance	
Other stresses	it is highly resistant to striga, it is moderately resistant to most insects, diseases and susceptible to aphids
Nutritional quality	
Other qualities	



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13+3S+3MgO+6CaO+0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S+1Zn+1B (3 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+ 1.2Zn"

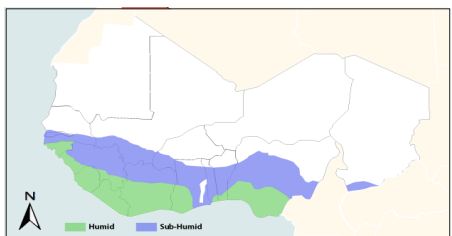
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants
Time of Application:	When possible

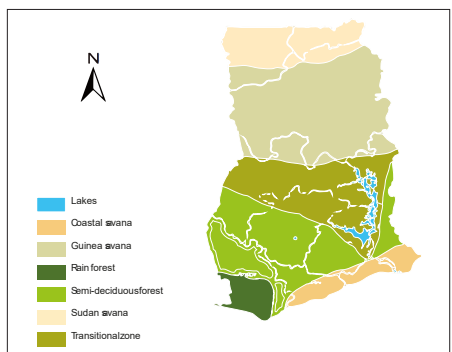


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended "
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	"Rotate with cereals Intercropping with cereals in small holdings"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
HUMID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
TRANSITION ZONE, RAIN FOREST AND COASTAL SAVANNA

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cowpea
Variety name	Videza
Local name	Beans
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	15
Seed Unit	kg/ha
Spacing	60 cm x 10 cm
Grain/Flesh Color	White with black eye
Planting / Sowing Time	"July - August March - April in the south of the country"
Production System	Rainfed
Number of days from sowing / planting to maturity	68-77
Potential Yield	3
Country Average	3
Pest resistance	Moderately tolerant to insect-pests especially thrips
Disease resistance	Moderately tolerant to Cercospora leaf spot and other important diseases
Other stresses	
Nutritional quality	
Other qualities	High market premium



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13+3S+3MgO+6CaO+0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S+1Zn+1B (3 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+ 1.2Zn"

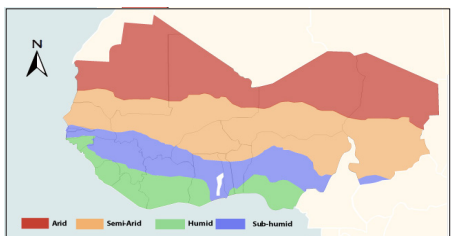
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants
Time of Application:	When possible

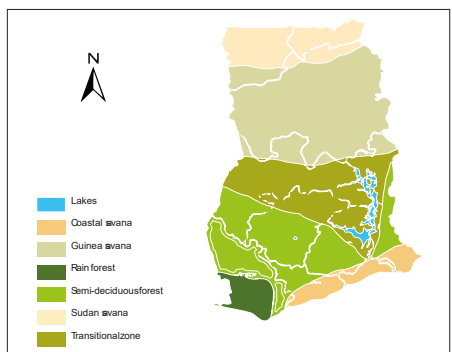


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended"
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	"Rotate with cereals Intercropping with cereals in small holdings"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA, GUINEA SAVANNA, TRANSITION ZONE AND COASTAL SAVANNA  
Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cowpea
Variety name	Wang-kae (No Striga)
Local name	Beans
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	15
Seed Unit	kg/ha
Spacing	60 cm x 10 cm
Grain/Flesh Color	White with brown eye
Planting / Sowing Time	"July - August March - April in the south of the country"
Production System	Rainfed
Number of days from sowing / planting to maturity	65
Potential Yield	2.4
Country Average	2.4
Pest resistance	Highly resistant to Aphis craccivora;, Resistant to striga gesnerioides
Disease resistance	
Other stresses	Moderately tolerant to drought and Macrophomina disease,
Nutritional quality	Protein content: 23.11 g/100g; Iron: 2.53 mg/100g
Other qualities	



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13+3S+3MgO+6CaO+0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S+1Zn+1B (3 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+1.2Zn  
For farm specific recommendations, farmers should conduct soil testing"

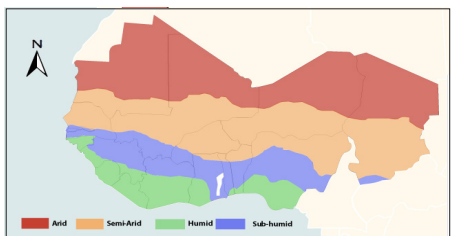
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants
Time of Application:	When possible

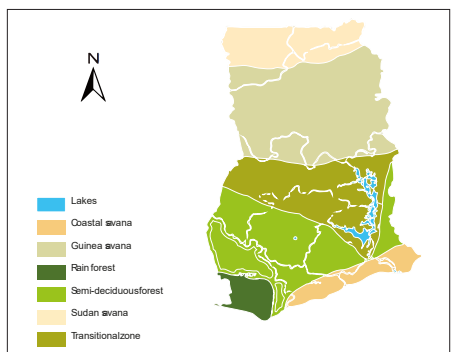


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended "
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	"Rotate with cereals Intercropping with cereals in small holdings"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA, GUINEA SAVANNA, TRANSITION ZONE AND COASTAL SAVANNA  
Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Cowpea
Variety name	Zaayura
Local name	Beans
Synonym	
Variety Type	Pure line
Quantity of seed (kg/hectare)	15
Seed Unit	kg/ha
Spacing	60 cm x 10 cm
Grain/Flesh Color	Creamy white with brown eye
Planting / Sowing Time	"July - August March - April in the south of the country"
Production System	Rainfed
Number of days from sowing / planting to maturity	64-67
Potential Yield	2.4 tonnes/ha
Country Average	2.4 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	It is highly resistant to aphids, it is moderately resistant to other insects, diseases and striga
Nutritional quality	
Other qualities	



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13+3S+3MgO+6CaO+0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S+1Zn+1B (3 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+1.2Zn  
For farm specific recommendations, farmers should conduct soil testing"

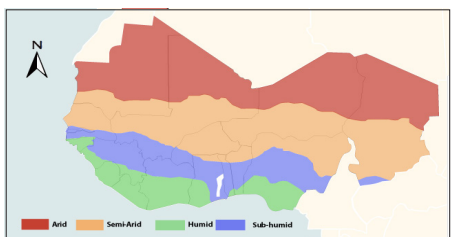
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants
Time of Application:	When possible

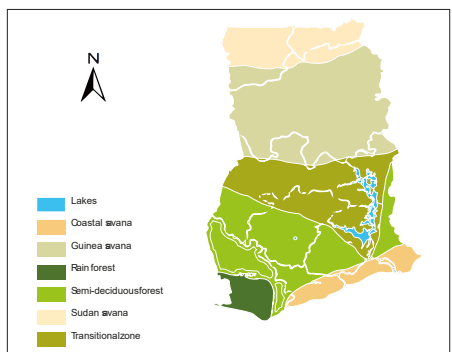


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	Drilling along the row and band placement. Seed inoculation is recommended
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	Rotate with cereals. Intercropping with cereals in small holdings



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Maize
Variety name	CSIR-Abontem
Local name	Abontem
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/ hectare)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 45cm; Seeds/hill: 2; Population/ha: 59,259;
Grain/Flesh Color	Yellow (Flint)
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfed
Number of days from sowing / planting to maturity	75-80
Potential Yield	4.7 tonnes/ha
Country Average	4.7 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Drought Tolerant, striga resistance
Nutritional quality	Quality Protein Maize. Good for poultry and livestock.
Other qualities	

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea)  
"

## ORGANIC FERTILIZER RECOMMENDATION

Application rate: Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants  
Time of Application: When possible

## FERTILIZER SPECIFICATION 1

Application rate: 300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)  
Time of Application: Apply at planting  
Application rate: 100 kg Urea (2 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION 3

Application rate: 400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)  
Time of Application: Apply 6 bags at planting and 2 bags 4 week after planting  
Application rate: 100 kg Urea (2 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION 5

Application rate: 200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)  
Time of Application: Apply at planting  
Application rate: 175 kg Urea (3.5 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION 2

Application rate: 275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)  
Time of Application: Apply at planting  
Application rate: 100 kg Urea (2 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION 4

Application rate: 200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)  
Time of Application: Apply at planting  
Application rate: 150 kg Urea (3 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

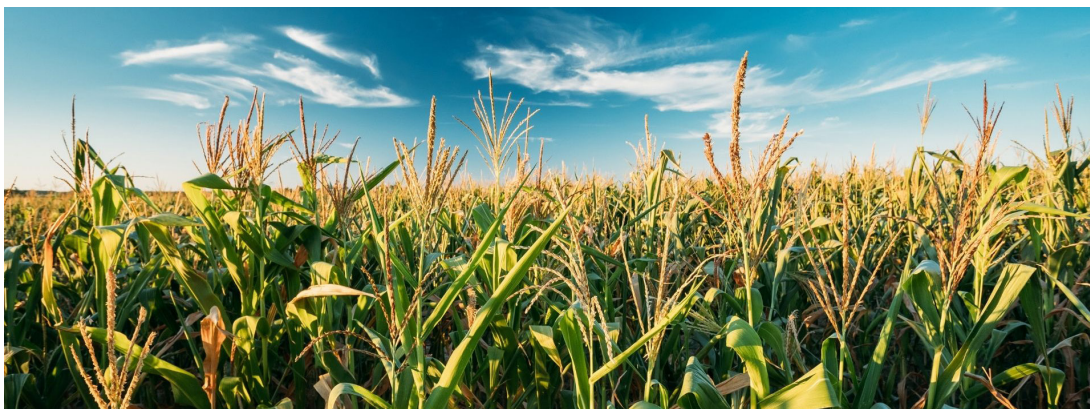
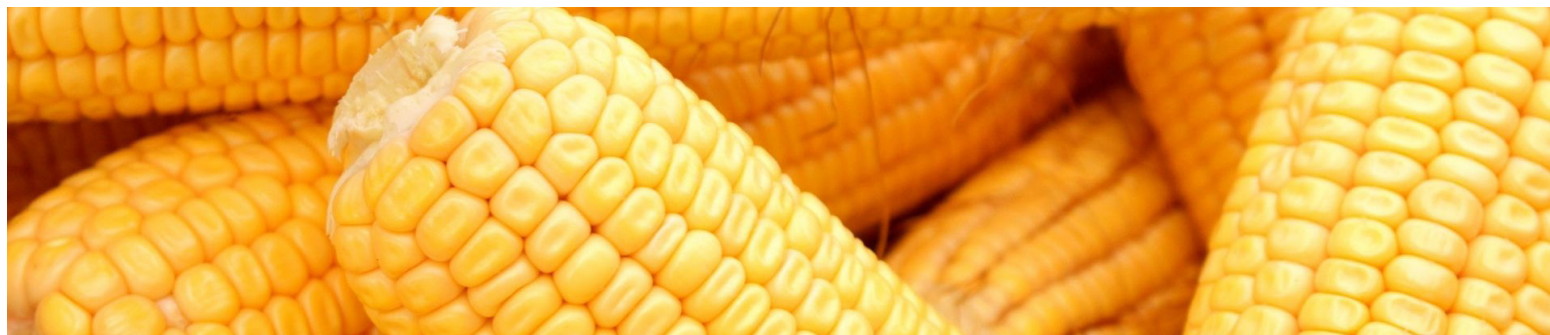
## FERTILIZER SPECIFICATION 6

Application rate: 450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)  
Time of Application: Apply 6 bags at planting and 3 bags 4 week after planting  
Application rate: 10.5 kg MOP (0.2 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	275 kg of NPK 20-10-10+3S (5.5 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	50 kg Urea (1 bags x 50 kg/ha)
Time of Application:	6 weeks after planting



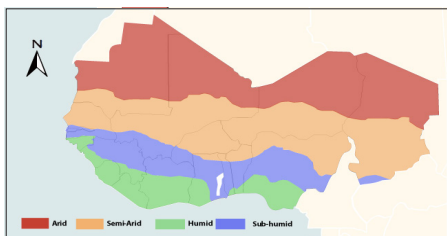
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



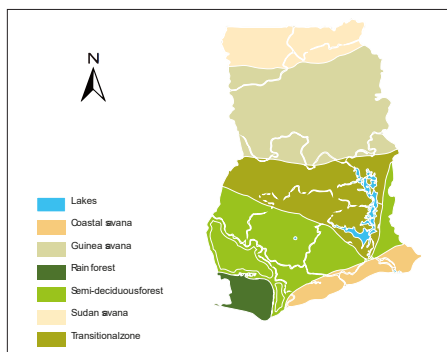
Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. Herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping



030\_CSIR-Abontem\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION



Crop	Maize
Variety name	CSIR-Aburohema
Local name	Aburohema
Synonym	
Variety Type	OPV
Quantity of seed (kg/ hectare)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 45cm; Seeds/hill: 2; Population/ha: 59,259
Grain/Flesh Color	White
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfed
Number of days from sowing / planting to maturity	90
Potential Yield	5 tonnes/ha
Country Average	5 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	Quality Protein Maize
Other qualities	

## NUTRIENT RECOMMENDATION



"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea)  
For farm specific recommendations, farmers should conduct soil testing"

## ORGANIC FERTILIZER RECOMMENDATION



Application rate: Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants  
Time of Application: When possible

## FERTILIZER SPECIFICATION



Application rate: 300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)  
Time of Application: Apply at planting  
Application rate: 100 kg Urea (2 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION



Application rate: 400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)  
Time of Application: Apply 6 bags at planting and 2 bags 4 week after planting  
Application rate: 100 kg Urea (2 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION



Application rate: 200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)  
Time of Application: Apply at planting  
Application rate: 175 kg Urea (3.5 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION



Application rate: 275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)  
Time of Application: Apply at planting  
Application rate: 100 kg Urea (2 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION



Application rate: 200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)  
Time of Application: Apply at planting  
Application rate: 150 kg Urea (3 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

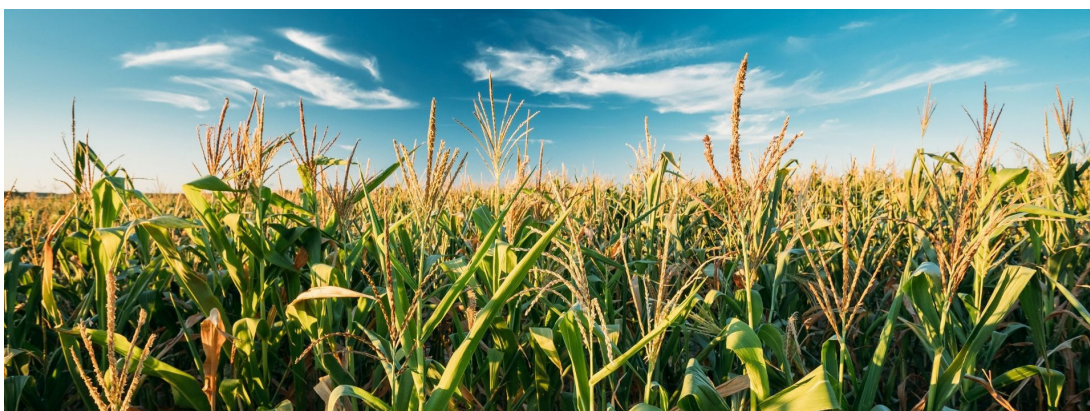


Application rate: 450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)  
Time of Application: Apply 6 bags at planting and 3 bags 4 week after planting  
Application rate: 10.5 kg MOP (0.2 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	275 kg of NPK 20-10-10+3S (5.5 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	50 kg Urea (1 bags x 50 kg/ha)
Time of Application:	6 weeks after planting



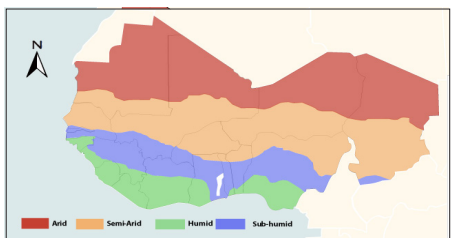
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



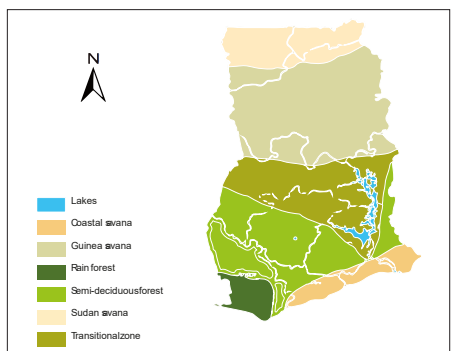
Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping



032\_CSIR-Abrohema\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY

## ALL AGROECOLOGY

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

### DESCRIPTION

Crop	Maize
Variety name	Aburo Legon
Local name	Legon Aburo
Synonym	
Variety Type	Hybrid
Quantity of seed (kg/ha)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 45cm; Seeds/hill: 2; Population/ha: 59,259
Grain/Flesh Color	White (Flint)
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfall
Number of days from sowing / planting to maturity	95
Potential Yield	10 tonnes/ha
Country Average	10 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Fairly resistant to maize streak virus disease (MSVD)
Nutritional quality	
Other qualities	Suitable for food, feed and industrial purposes

### NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea). For farm specific recommendations, farmers should conduct soil testing"

### ORGANIC FERTILIZER RECOMMENDATION

Application rate: Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants  
Time of Application: When possible

### FERTILIZER SPECIFICATION 1

Application rate: 300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)  
Time of Application: Apply at planting  
Application rate: 100 kg Urea (2 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

### FERTILIZER SPECIFICATION 3

Application rate: 400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)  
Time of Application: Apply 6 bags at planting and 2 bags 4 week after planting  
Application rate: 100 kg Urea (2 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

### FERTILIZER SPECIFICATION 5

Application rate: 200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)  
Time of Application: Apply at planting  
Application rate: 175 kg Urea (3.5 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

### FERTILIZER SPECIFICATION 2

Application rate: 275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)  
Time of Application: Apply at planting  
Application rate: 100 kg Urea (2 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

### FERTILIZER SPECIFICATION 4

Application rate: 200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)  
Time of Application: Apply at planting  
Application rate: 150 kg Urea (3 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

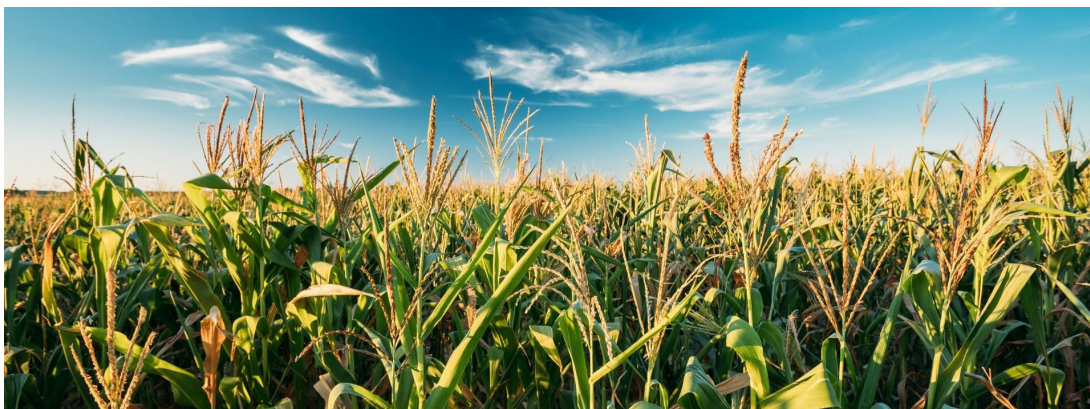
### FERTILIZER SPECIFICATION 6

Application rate: 450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)  
Time of Application: Apply 6 bags at planting and 3 bags 4 week after planting  
Application rate: 10.5 kg MOP (0.2 bags x 50 kg/ha)  
Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	275 kg of NPK 20-10-10+3S (5.5 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bags x 50 kg/ha)
Time of Application:	6 weeks after planting



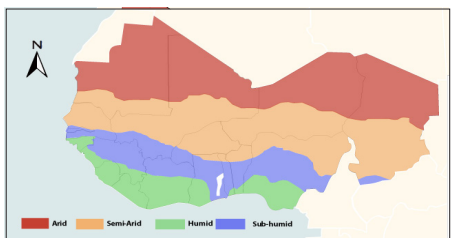
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



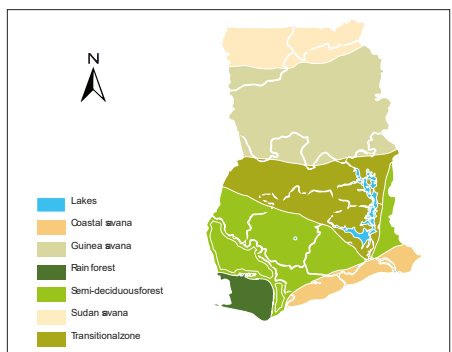
Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping



034\_CSIR-Abrohema\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
 Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Maize
Variety name	CSIR-Akposoe
Local name	Akposoe
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/ha)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 45cm; Seeds/hill: 2; Population/ha: 59,259
Grain/Flesh Color	White
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfall
Number of days from sowing / planting to maturity	85
Potential Yield	5 tonnes/ha
Country Average	5 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	Quality Protein Maize
Other qualities	

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
 100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea). For farm specific recommendations, farmers should conduct soil testing"

## ORGANIC FERTILIZER RECOMMENDATION

Application rate: Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants  
 Time of Application: When possible

## FERTILIZER SPECIFICATION 1

Application rate: 300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)  
 Time of Application: Apply at planting  
 Application rate: 100 kg Urea (2 bags x 50 kg/ha)  
 Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION 3

Application rate: 400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)  
 Time of Application: Apply 6 bags at planting and 2 bags 4 week after planting  
 Application rate: 100 kg Urea (2 bags x 50 kg/ha)  
 Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION 5

Application rate: 200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)  
 Time of Application: Apply at planting  
 Application rate: 175 kg Urea (3.5 bags x 50 kg/ha)  
 Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION 2

Application rate: 275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)  
 Time of Application: Apply at planting  
 Application rate: 100 kg Urea (2 bags x 50 kg/ha)  
 Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION 4

Application rate: 200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)  
 Time of Application: Apply at planting  
 Application rate: 150 kg Urea (3 bags x 50 kg/ha)  
 Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

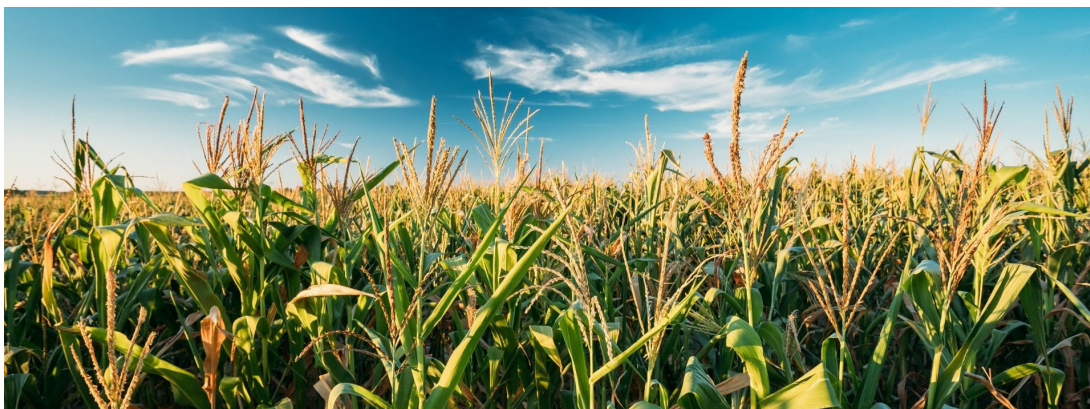
## FERTILIZER SPECIFICATION 6

Application rate: 450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)  
 Time of Application: Apply 6 bags at planting and 3 bags 4 week after planting  
 Application rate: 50 kg MOP (1 bag x 50 kg/ha)  
 Time of Application: 3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



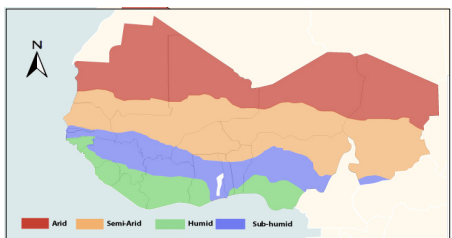
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



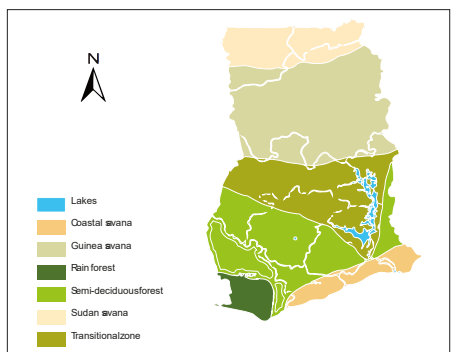
Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Weed Control (herbicides and GAP)
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping)



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WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
 Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Maize
Variety name	CSIR-Bihilifa
Local name	Bihilifa
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/ hectare)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 45cm; Seeds/hill: 2; Population/ha: 59,259
Grain/Flesh Color	Yellow (Flint)
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfall
Number of days from sowing / planting to maturity	90
Potential Yield	4.6
Country Average	4.6
Pest resistance	
Disease resistance	
Other stresses	Striga and drought tolerant; tolerant to lodging, tolerant to rust, blight, streak and curvularia
Nutritional quality	Quality Protein Maize
Other qualities	Most suitable for the striga hermonthica infested fields of the Guinea and Sudan savanna, and Forest-savannah transition

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
 100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea). For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

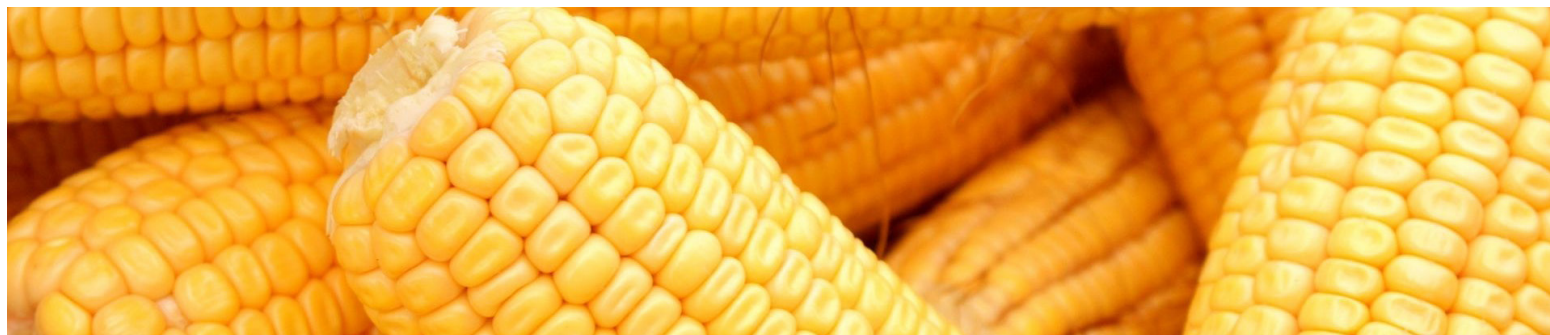
## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	50 kg MOP (1 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

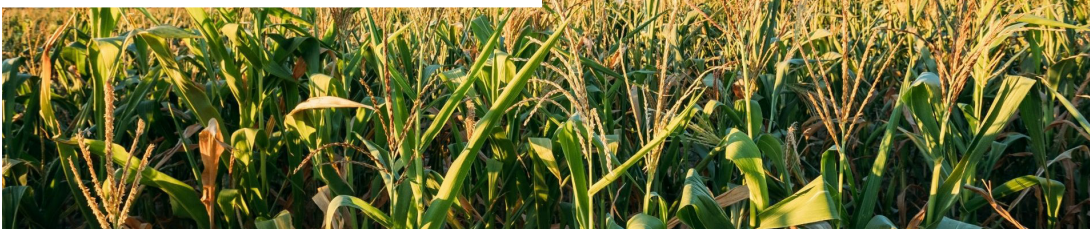
Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



Application rate:	Organic manure, Compost, Biofertilizers, Biot stimulants, Inoculants
Time of Application	When possible



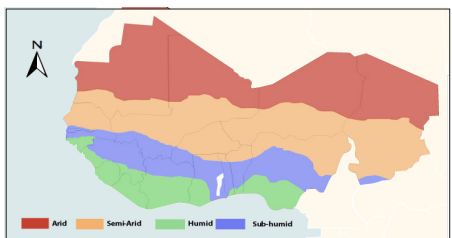
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



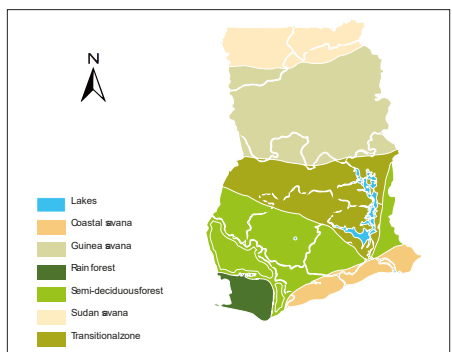
Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Weed Control (herbicides and GAP)
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping)



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WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
Isohyet range 600-1800 Costal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Maize
Variety name	Dorke
Local name	
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/hectare)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 45cm; Seeds/hill: 2; Population/ha: 59,259
Grain/Flesh Color	White (Flint)
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfall
Number of days from sowing / planting to maturity	80-90
Potential Yield	5.5 tonnes/ha
Country Average	5.5 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	
Other qualities	

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea). For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	50 kg MOP (1 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



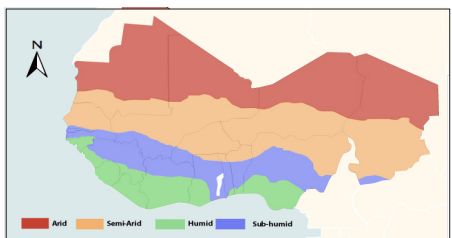
Application rate:	Organic manure, Compost, Biofertilizers, Biotstimulants, Inoculants
Time of Application	When possible



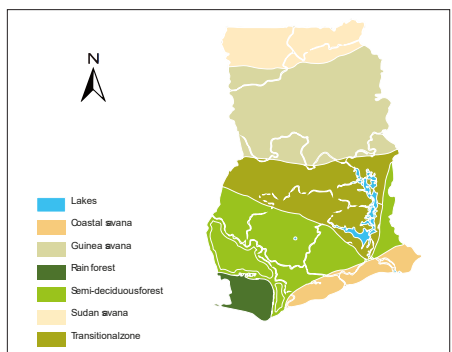
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Weed Control (herbicides and GAP)
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping)



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA  
Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Maize
Variety name	CSIR-Golden Jubilee
Local name	Golden Jubilee
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/ hectare)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 45cm; Seeds/hill: 2; Population/ha: 59,259
Grain/Flesh Color	Yellow (Dent)
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfall
Number of days from sowing / planting to maturity	110
Potential Yield	5 tonnes/ha
Country Average	5 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	Quality Protein Maize. Suitable for poultry and livestock production
Other qualities	Excellent for enhanced nutrition and health of humans

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea)"

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

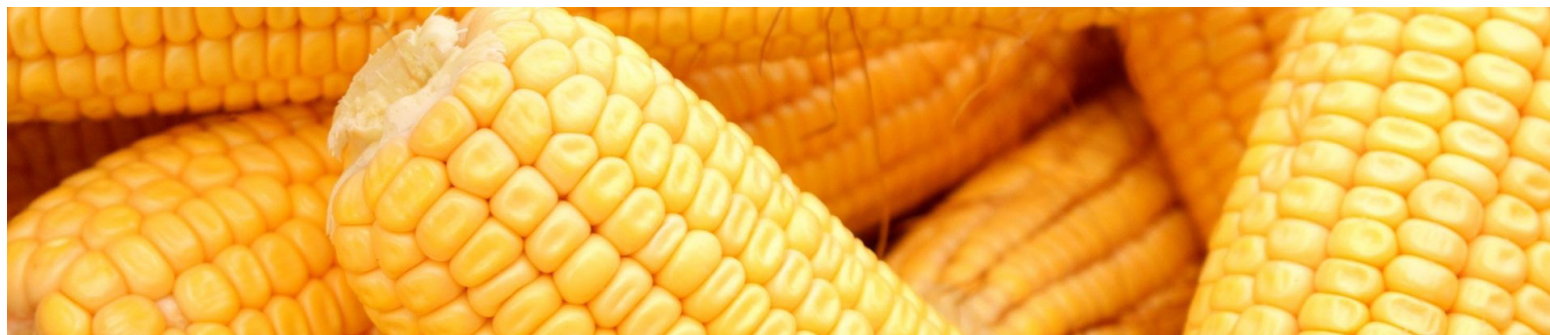
## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	50 kg of MOP (1 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



Application rate:	Organic manure, Compost, Biofertilizers, Biotstimulants, Inoculants
Time of Application	When possible



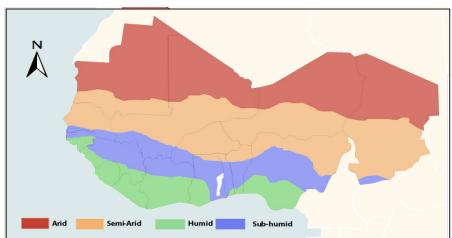
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



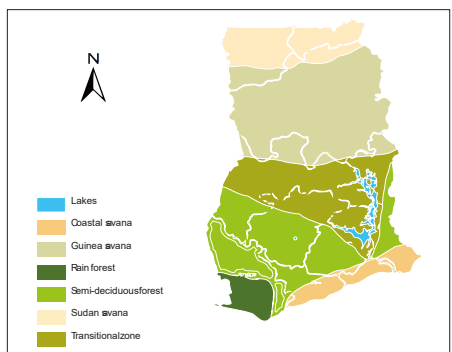
Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers.
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. Herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping



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WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
 Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Maize
Variety name	LG 336
Local name	
Synonym	
Variety Type	Hybrid
Quantity of seed (kg/ hectare)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 25cm; Seeds/hill: 1; Population/ha: 53,333
Grain/Flesh Color	Yellow (Flint)
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfall
Number of days from sowing / planting to maturity	110-115
Potential Yield	8-9 tonnes/ha
Country Average	8-9 tonnes/ha
Pest resistance	
Disease resistance	Excellent diseases resistance
Other stresses	
Nutritional quality	
Other qualities	High % of plants with 2 ears

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
 100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea). For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION 1

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION 3

Application rate:	400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION 5

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION 2

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION 4

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

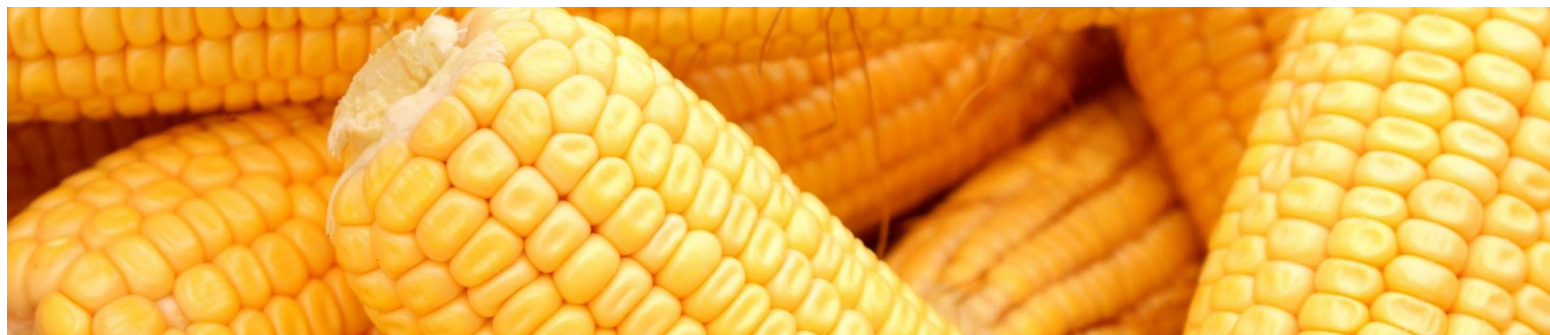
## FERTILIZER SPECIFICATION 6

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	50 kg of MOP (1 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



Application rate: If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants

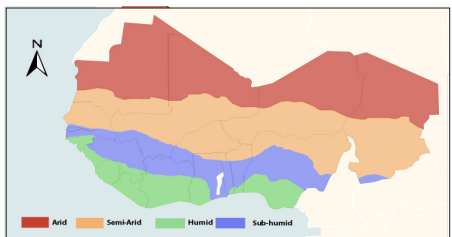
Time of Application When possible



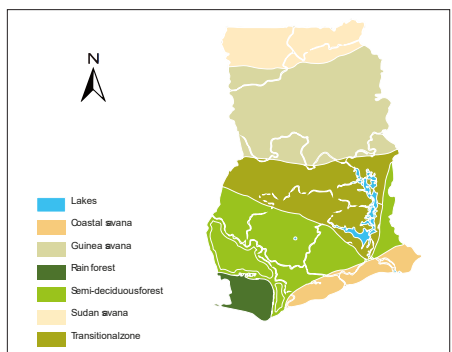
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. Herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Maize
Variety name	LG 345
Local name	
Synonym	
Variety Type	Hybrid
Quantity of seed (kg/ha)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 25cm; Seeds/hill: 1; Population/ha: 53,333
Grain/Flesh Color	Yellow (Semi-Flint)
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfall
Number of days from sowing / planting to maturity	100
Potential Yield	7-9 tonnes/ha
Country Average	7-9 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	
Other qualities	

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea). For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

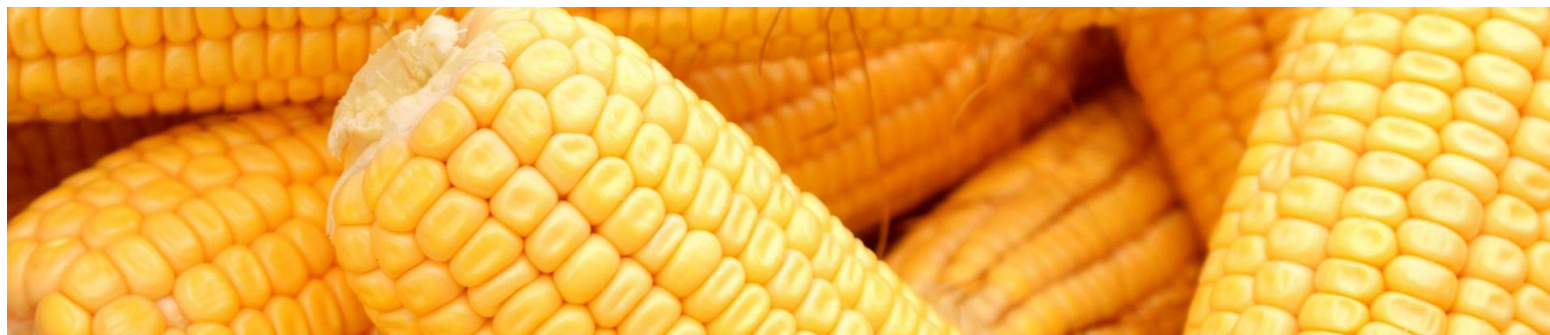
## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	50 kg of MOP (1 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



Application rate: If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants

Time of Application When possible



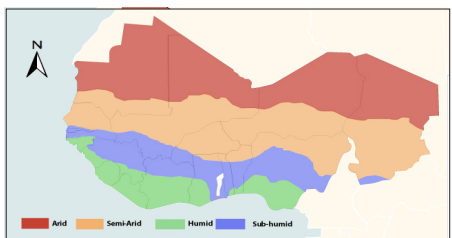
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



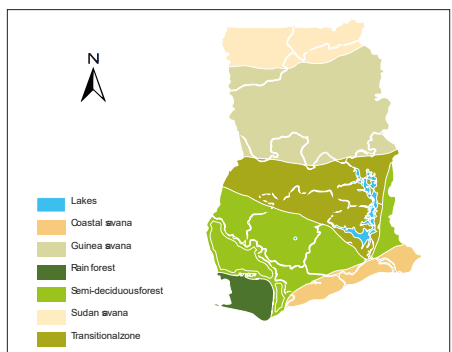
Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. Herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping



046\_LG 345\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA  
 Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Maize
Variety name	LG 501
Local name	
Synonym	
Variety Type	Hybrid
Quantity of seed (kg/ hectare)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 25cm; Seeds/hill: 1; Population/ha: 53,333
Grain/Flesh Color	Yellow (Semi-flint)
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfed
Number of days from sowing / planting to maturity	105-110
Potential Yield	8-10
Country Average	8-10
Pest resistance	
Disease resistance	Very good tolerance to common rust and leaf diseases
Other stresses	
Nutritional quality	
Other qualities	

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
 100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea)  
 For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

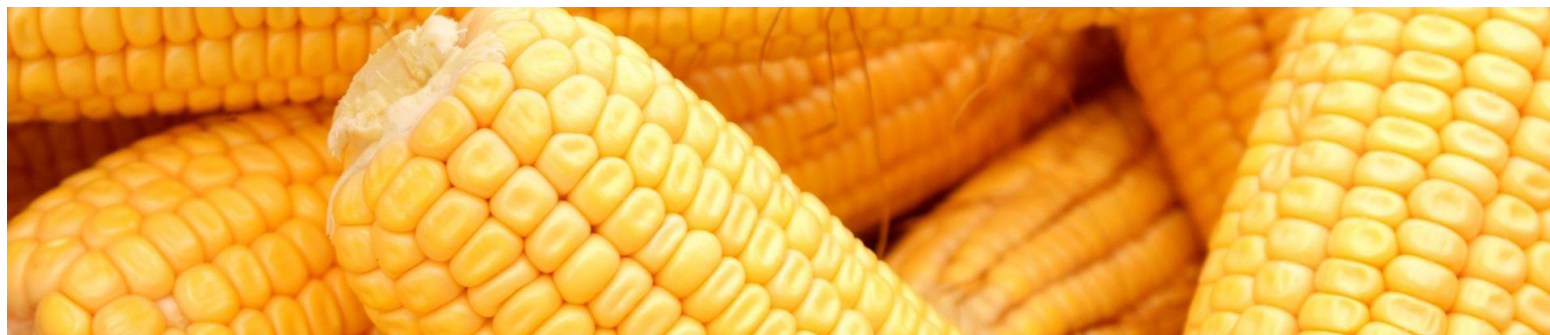
## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	50 kg of MOP (1 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



Application rate: If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants

Time of Application When possible

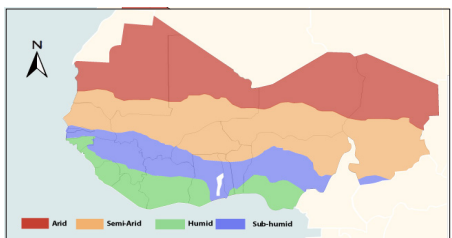


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

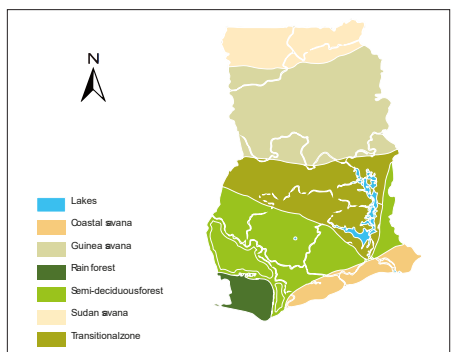


Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. Herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping





WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
 Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Maize
Variety name	Mamaba
Local name	Mamaba
Synonym	
Variety Type	Hybrid
Quantity of seed (kg/ hectare)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 45cm; Seeds/hill: 2; Population/ha: 59,259
Grain/Flesh Color	White (Flint)
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfall
Number of days from sowing / planting to maturity	110
Potential Yield	6.5 tonnes/ha
Country Average	6.5 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	Quality Protein Maize
Other qualities	

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
 100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea). For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	50 kg of MOP (1 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



Application rate: If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants

Time of Application When possible



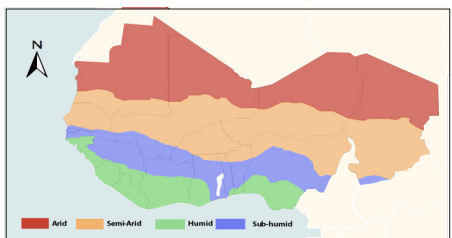
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



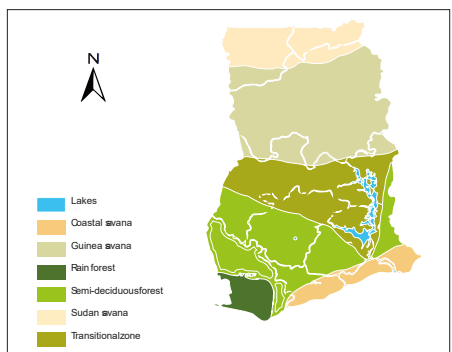
Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. Herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping



050\_Mamaba\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

## TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA

Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

### DESCRIPTION

Crop	Maize
Variety name	CSIR-Omankwa
Local name	Omankwa
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/hectare)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 25cm; Seeds/hill:1; Population/ha: 53,333
Grain/Flesh Color	White
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfall
Number of days from sowing / planting to maturity	90
Potential Yield	5 tonnes/ha
Country Average	5 tonnes/ha
Pest resistance	
Disease resistance	Striga Resistant
Other stresses	
Nutritional quality	Quality Protein Maize
Other qualities	

### NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea)  
"

### FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

### FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

### FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

### FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

### FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

### FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	50 kg of MOP (1 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting

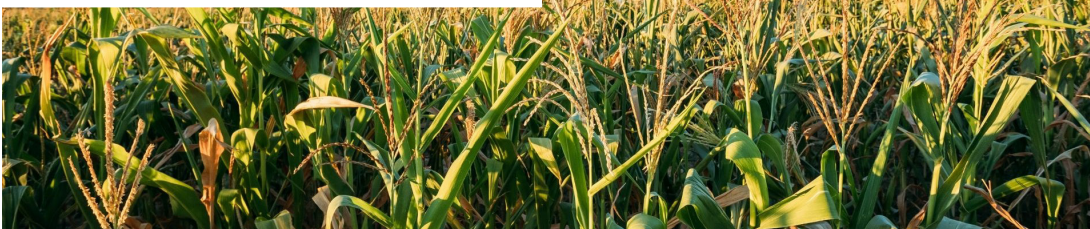


## ORGANIC FERTILIZER RECOMMENDATION



Application rate: If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants

Time of Application When possible

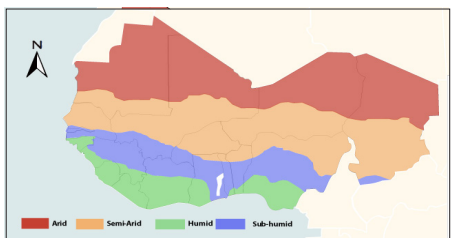


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

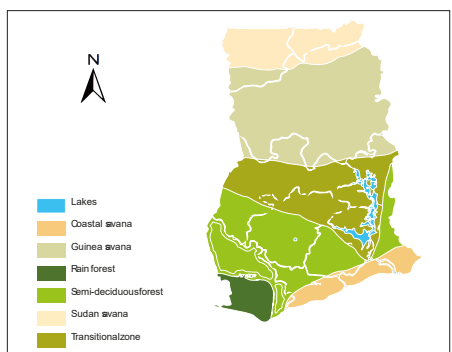


Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. Herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping

052\_CSIR-Omankwa\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Maize
Variety name	CSIR-Sanzal-sima
Local name	Sanzal-sima
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/ hectare)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 45cm; Seeds/hill: 2; Population/ha: 59,259
Grain/Flesh Color	White
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfall
Number of days from sowing / planting to maturity	110
Potential Yield	5.4 tonnes/ha
Country Average	5.4 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	drought tolerant; tolerant to lodging; tolerant to rust, blight; streak and curvularia
Nutritional quality	

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea)  
"

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	50 kg of MOP (1 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



Application rate: If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants

Time of Application When possible

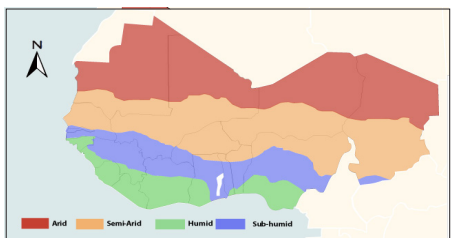


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

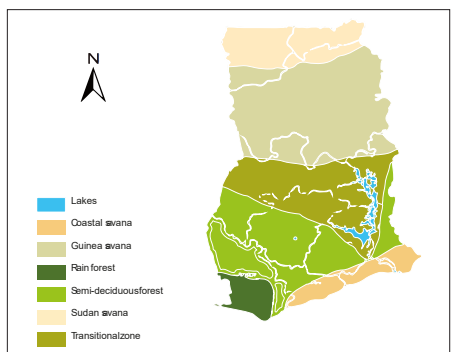


Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. Herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping

054\_CSIR-Sanzal-sima\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
 Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Maize
Variety name	SC510
Local name	
Synonym	
Variety Type	Hybrid
Quantity of seed (kg/ hectare)	20-22
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 25cm; Seeds/hill: 1; Population/ha: 53,333
Grain/Flesh Color	Yellow (Flint)
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfall
Number of days from sowing / planting to maturity	90
Potential Yield	5-6
Country Average	5-6
Pest resistance	
Disease resistance	Resistant to most common maize diseases and less susceptible to the fall army worm
Other stresses	
Nutritional quality	ProVitamin A
Other qualities	

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
 100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea). For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

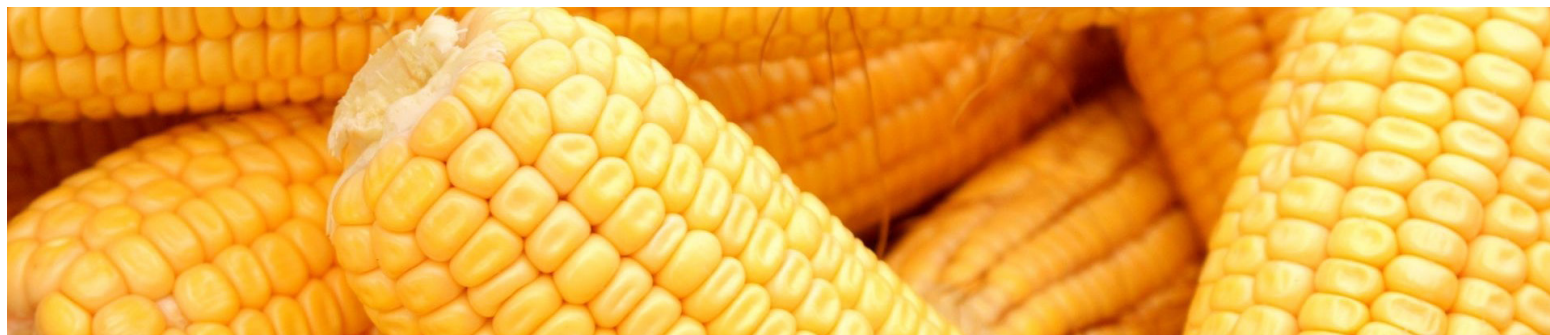
## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	50 kg of MOP (1 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



Application rate: If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants

Time of Application When possible



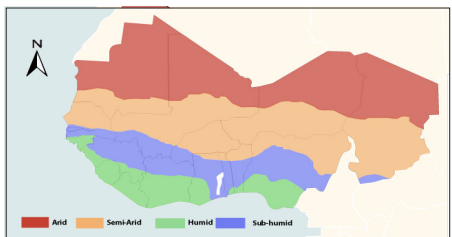
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



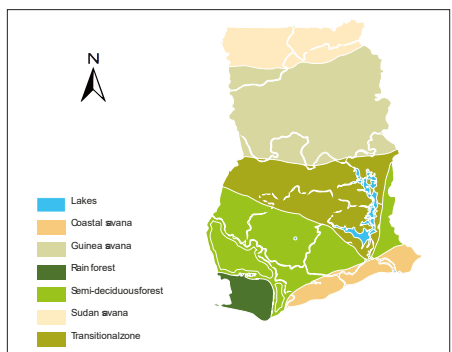
Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. Herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping



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WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
 Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Maize
Variety name	SC649
Local name	Hw3fo
Synonym	
Variety Type	Hybrid
Quantity of seed (kg/ hectare)	25
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 25cm; Seeds/hill: 1; Population/ha: 53,333
Grain/Flesh Color	White (Semi-dented)
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfall
Number of days from sowing / planting to maturity	105-115
Potential Yield	8-10
Country Average	8-10
Pest resistance	
Disease resistance	
Other stresses	Good tolerant to maize leaf blight and leaf rust
Nutritional quality	
Other qualities	

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
 100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea). For farm specific recommendations, farmers should conduct soil testing  
 "

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	50 kg of MOP (1 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting

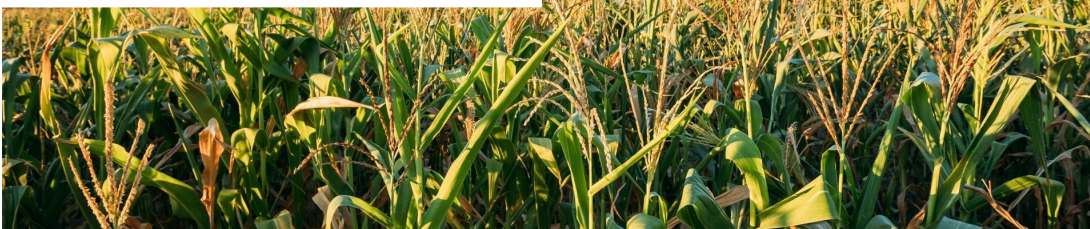


## ORGANIC FERTILIZER RECOMMENDATION



Application rate: If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants

Time of Application When possible

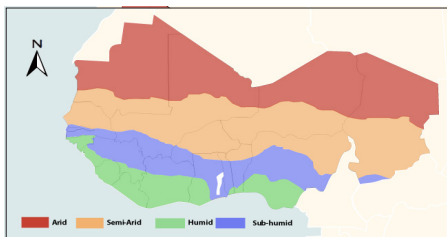


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

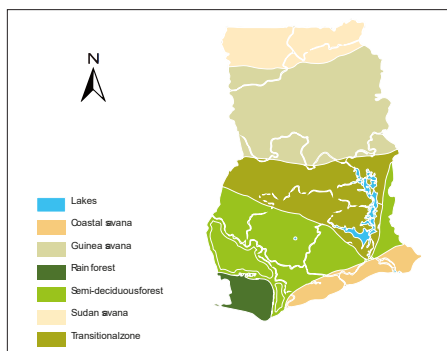


Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. Herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping

058\_SC649\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

## TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA

Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

### DESCRIPTION

Crop	Maize
Variety name	CSIR-CRI Tintim
Local name	Tintim
Synonym	
Variety Type	Hybrid
Quantity of seed (kg/ hectare)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 45cm; Seeds/hill: 2; Population/ha: 59,259
Grain/Flesh Color	White (Flint)
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfall
Number of days from sowing / planting to maturity	110-115
Potential Yield	7.9
Country Average	7.9
Pest resistance	
Disease resistance	
Other stresses	Moderately tolerant to drought
Nutritional quality	
Other qualities	Very good for domestic purposes

### NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea). For farm specific recommendations, farmers should conduct soil testing"

### FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

### FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

### FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

### FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

### FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

### FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	50 kg of MOP (1 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



Application rate: If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants

Time of Application When possible

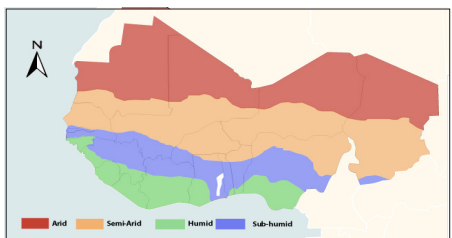


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

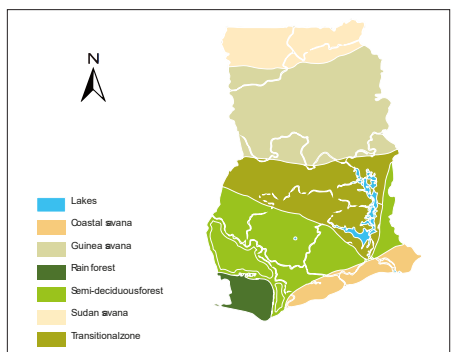


Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. Herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping

060\_CSIR-CRI Tintim\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
 Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Maize
Variety name	CSIR-Wang-dataa
Local name	Wang-dataa
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/ hectare)	20
Seed Unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 25cm; Seeds/hill:1; Population/ha: 53,333
Grain/Flesh Color	White
Planting / Sowing Time	15 April - 15 May, 15 July-15 August
Production System	Rainfall
Number of days from sowing / planting to maturity	90
Potential Yield	4.7 tonnes/ha 4.7 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Striga and drought tolerant; tolerant to lodging, tolerant to rust, blight, streak and curvularia
Nutritional quality	
Other qualities	

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
 100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea)  
 "

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	50 kg of MOP (1 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting

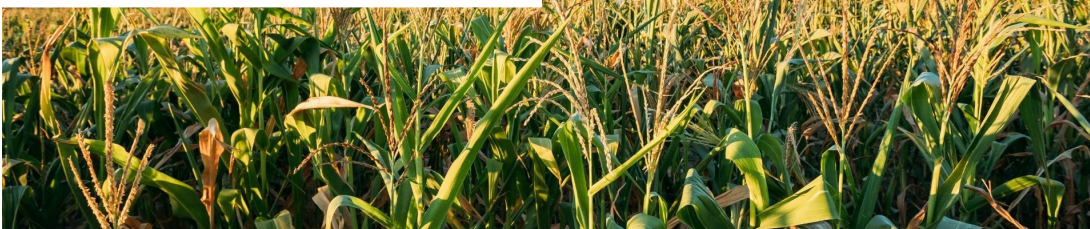


## ORGANIC FERTILIZER RECOMMENDATION



Application rate: If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants

Time of Application When possible

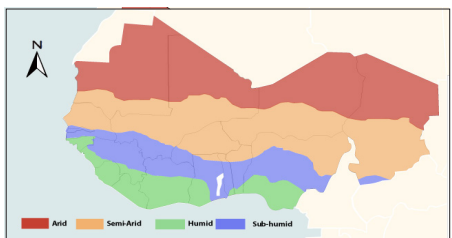


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

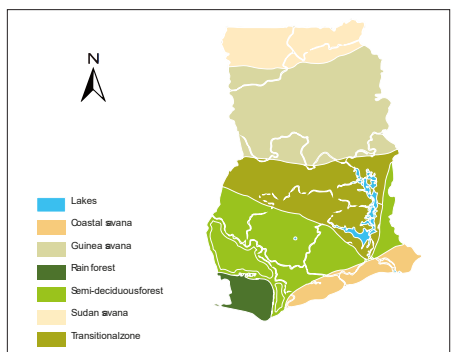


Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. Herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping

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WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

TRANSITIONAL ZONE, SEMI-DECIDUOUS FOREST, RAIN FOREST, SUDAN SAVANNA, GUINEA SAVANNA- GASHUWA, DAMBOA, JIBIA, GORONYO, ARGUNGU, BUNGUDU, MUBI, SHUWA  
Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION



Crop	Maize
Variety name	Obatampa
Local name	Obatanpa
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/ hectare)	20
Seed unit	kg/ha
Spacing	Between Rows: 75cm; Within Rows: 45cm; Seeds/hill: 2; Population/ha: 59,259
Grain/Flesh Color	White (Dent)
Planting / Sowing Time	15 April - 15 May, 15 July-15 August;
Production System	Rainfall
Number of days from sowing / planting to maturity	105 - 110
Potential Yield	4.6 tons/ha
Country Average	4.6 tons/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	Quality Protein Maize
Other qualities	

## NUTRIENT RECOMMENDATION



"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea)  
"

## FERTILIZER SPECIFICATION



Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION



Application rate:	400 kg of NPK 20-10-10+3S(8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION



Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION



Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION



Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION



Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	50 kg of MOP (1 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	10.5 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting

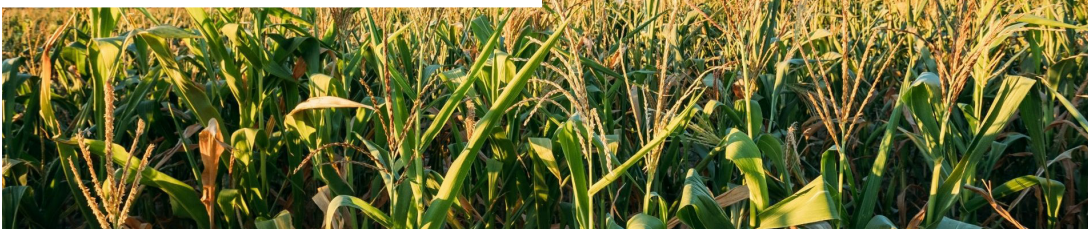


## ORGANIC FERTILIZER RECOMMENDATION



Application rate: If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants

Time of Application When possible



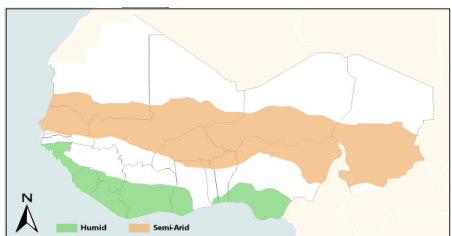
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



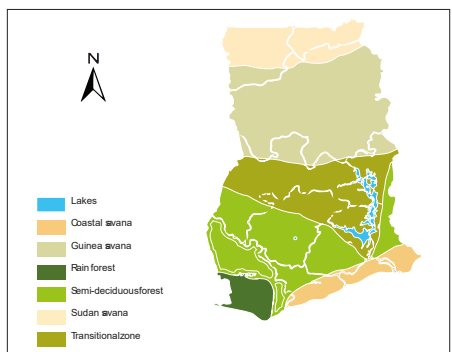
Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers .
Soil Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate . Lime, rock phosphate and biochar to reduce soil acidity
Water Management	Use supplementary irrigation where appropriate even during rainfed production. e.g. irrigation, water harvesting techniques
Pest Management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms. Emamectin benzoate or Bacillus thuringiensis (or Bt) rotate chemical to avoid resistance
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted . herbicides and GAP
Cropping System	Rotation (maize and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping



064\_Obatampa\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA AND GUINEA SAVANNA

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Pearl Millet
Variety name	Afribeh-Naara
Local name	Tongo Yellow
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/hectare)	7.5
Seed Unit	kg/ha
Spacing	75 cm x 30 cm
Grain/Flesh Color	Yellow
Planting / Sowing Time	June - July
Production System	Rainfall
Number of days from sowing / planting to maturity	70-80
Potential Yield	1.9 tonnes/ha
Country Average	1.9 tonnes/ha
Pest resistance	
Disease resistance	Tolerant to Downy mildew disease.
Other stresses	
Nutritional quality	Rich in grain iron and zinc
Other qualities	Excellent for Foroforo



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	25 kg of Urea (0.5 bag x 50 kg/ha)
Time of Application:	Point application

## FERTILIZER SPECIFICATION

Application rate:	180 kg of NPK 11-22-21 + 5S + 0.7Zn + 0.5B (3.6 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	50 kg of Urea (1 bag x 50 kg/ha)
Time of Application:	Point application

## NUTRIENT RECOMMENDATION

20-40N-40P2O5-40K2O. For farm specific recommendations, farmers should conduct soil testing

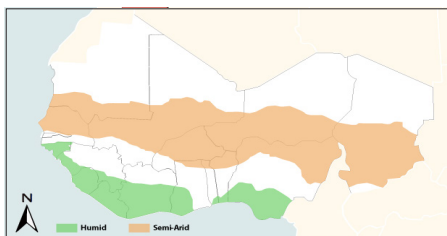
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants
Time of Application:	When possible

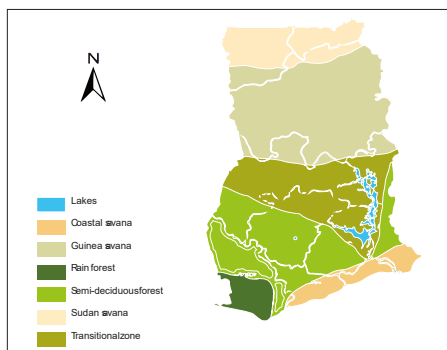


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops, Zai method, stone bonding and tied-ridging. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	Band placement
Soil Amendments	Compost, organic manure must be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	Rotate with legumes. Intercrop with legumes in small holdings



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SEMI-ARID AND SUB-HUMID**



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA AND GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Pearl Millet
Variety name	Akad-Kom
Local name	Bongo Short Head
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/hectare)	7.5
Seed Unit	kg/ha
Spacing	75 cm x 30 cm
Grain/Flesh Color	Grey
Planting / Sowing Time	June - July
Production System	Rainfall
Number of days from sowing / planting to maturity	90
Potential Yield	2 tonnes/ha
Country Average	2 tonnes/ha
Pest resistance	
Disease resistance	Tolerant to Downy mildew disease
Other stresses	Drought tolerant
Nutritional quality	Rich in grain Iron and Zinc
Other qualities	Excellent for porridge and Foroforo



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	25 kg of Urea (0.5 bag x 50 kg/ha)
Time of Application:	Point application

## FERTILIZER SPECIFICATION

Application rate:	180 kg of NPK 14-31-0 +9S +1Zn +1B (3.6 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	50 kg of Urea (1 bag x 50 kg/ha)
Time of Application:	Point application

## NUTRIENT RECOMMENDATION

20-40N-40P2O5-40K2O. For farm specific recommendations, farmers should conduct soil testing

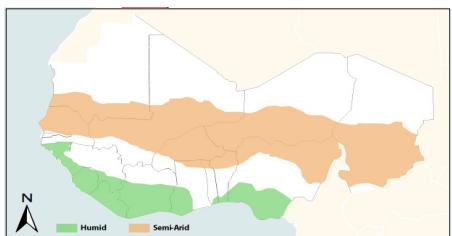
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants
Time of Application:	When possible

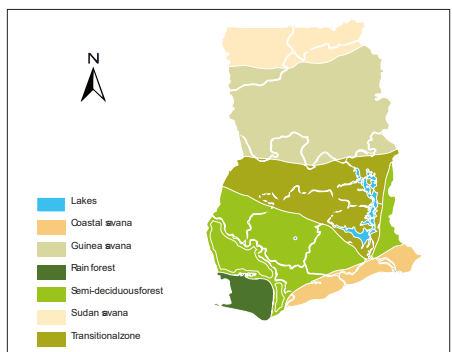


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops, Zai method, stone bonding and tied-ridging. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	Band placement
Soil Amendments	Compost, organic manure must be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	"Rotate with legumes Intercropping with legumes in small holdings"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA AND GUINEA SAVANNA

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Pearl Millet
Variety name	Kaanati
Local name	Arrow head
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/hectare)	7.5
Seed Unit	kg/ha
Spacing	75 cm x 30 cm
Grain/Flesh Color	Ivory
Planting / Sowing Time	June - July
Production System	Rainfall
Number of days from sowing / planting to maturity	70-80
Potential Yield	2 tonnes/ha
Country Average	2 tonnes/ha
Pest resistance	
Disease resistance	Tolerant to Downy mildew disease
Other stresses	
Nutritional quality	Rich in grain iron and zinc
Other qualities	Excellent for Porridge, Foroforo; cakes and T-Z



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	25 kg of Urea (0.5 bag x 50 kg/ha)
Time of Application:	Point application

## FERTILIZER SPECIFICATION

Application rate:	180 kg of NPK 11-22-21 + 5S + 0.7Zn + 0.5B (3.6 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	50 kg of Urea (1 bag x 50 kg/ha)
Time of Application:	Point application

## NUTRIENT RECOMMENDATION

20-40N-40P2O5-40K2O. For farm specific recommendations, farmers should conduct soil testing

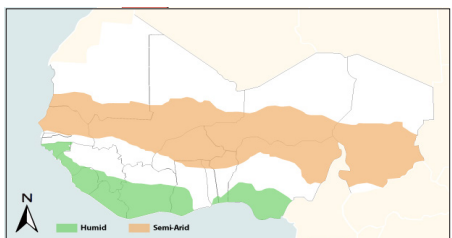
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants
Time of Application:	When possible

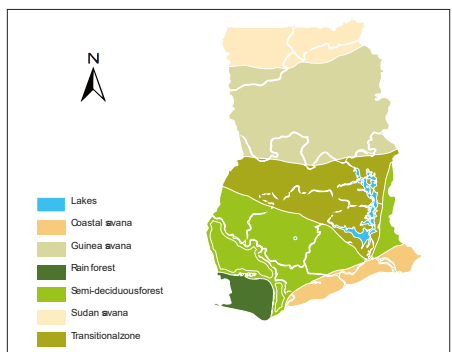


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops, Zai method, stone bonding and tied-ridging. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	Band placement
Soil Amendments	Compost, organic manure must be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	"Rotate with legumes Intercropping with legumes in small holdings"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA AND GUINEA SAVANNA

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Pearl Millet
Variety name	Naad-kohblug
Local name	Bristled Head
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/hectare)	7.5
Seed Unit	7.5
Spacing	75 cm x 30 cm
Grain/Flesh Color	Ivory
Planting / Sowing Time	June - July
Production System	Rainfall
Number of days from sowing / planting to maturity	70-80
Potential Yield	2
Country Average	2
Pest resistance	Tolerant to bird and insect damage
Disease resistance	Tolerant to Downy mildew disease
Other stresses	Drought tolerant
Nutritional quality	Rich in grain iron and zinc
Other qualities	Excellent for Porridge and Foroforo.



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	25 kg of Urea (0.5 bag x 50 kg/ha)
Time of Application:	Point application

## FERTILIZER SPECIFICATION

Application rate:	180 kg of NPK 11-22-21 + 5S + 0.7Zn + 0.5B (3.6 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	50 kg of Urea (1 bag x 50 kg/ha)
Time of Application:	Point application

## NUTRIENT RECOMMENDATION

20-40N-40P2O5-40K2O. For farm specific recommendations, farmers should conduct soil testing

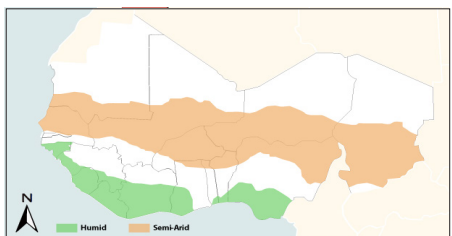
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofertilizers, Biostimulants, Inoculants
Time of Application:	When possible

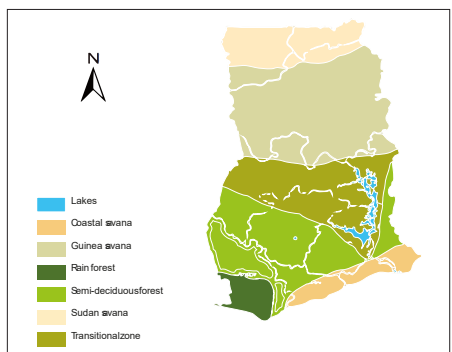


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops, Zai method, stone bonding and tied-ridging. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	Band placement
Soil Amendments	Compost, organic manure must be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	"Rotate with legumes Intercrop with legumes in small holdings"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA AND GUINEA SAVANNA

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Pearl Millet
Variety name	WAAPP-Naara
Local name	So x Sat
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/hectare)	7.5
Seed Unit	kg/ha
Spacing	75 cm x 30 cm
Grain/Flesh Color	Grey
Planting / Sowing Time	June - July
Production System	Rainfall
Number of days from sowing / planting to maturity	70-80
Potential Yield	2.1 tonnes/ha
Country Average	2.1 tonnes/ha
Pest resistance	
Disease resistance	Resistance to Downy mildew Disease.
Other stresses	Drought tolerance
Nutritional quality	Rich in grain iron and zinc



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	25 kg of Urea (0.5 bag x 50 kg/ha)
Time of Application:	Point application

## FERTILIZER SPECIFICATION

Application rate:	180 kg of NPK 11-22-21 + 5S + 0.7Zn + 0.5B (3.6 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	50 kg of Urea (1 bag x 50 kg/ha)
Time of Application:	Point application

## NUTRIENT RECOMMENDATION

125kg of 23N-10P2O5-5K2O+3MgO+3S+0.3Zn For farm specific recommendations, farmers should conduct soil testing

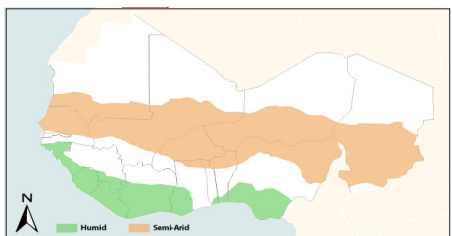
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost, Biofortifiers, Biostimulants, Inoculants
Time of Application:	When possible

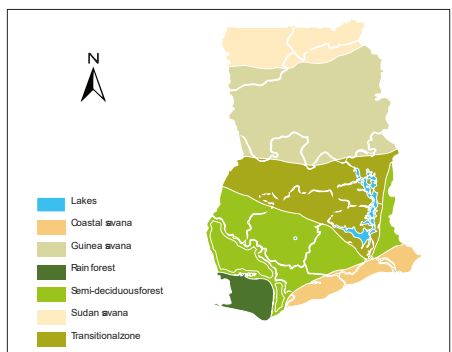


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops, Zai method, stone bonding and tied-ridging. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	Band placement
Soil Amendments	Compost, organic manure must be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	"Rotate with legumes Intercrop with legumes in small holdings"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SEMI-ARID AND SUB-HUMID**



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA AND GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

DESCRIPTION	
Crop	Peanut (Groundnut)
Variety Name	Chinese (Shi tao chi)
Local name	
Synonym	
Variety Type	Open Pollinated Variety (OPV)
Quantity of seed (kg/hectare)	50
Seed unit	kg/ha
Spacing	40 cm x 10 cm
Grain Color	Tan
Sowing/Planting Period	June - July
Production System	Rainfall
Number of days sowing/planting - maturity	90
Potential yield	2.1 tonnes/ha
Country average	2.1 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	The seeds contain 35% oil.



FERTILIZER SPECIFICATION 1	
Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

FERTILIZER SPECIFICATION 2	
Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

FERTILIZER SPECIFICATION 3	
Application rate:	100 kg of NPK 14-31-0 +9S +1Zn +1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

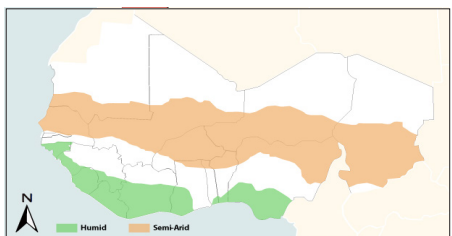
NUTRIENT RECOMMENDATION	
Application rate:	"20N-60P2O5-30K2O+ 1.2Zn"

ORGANIC FERTILIZER RECOMMENDATION	
Application rate:	Organic manure, Compost
Time of Application:	When possible

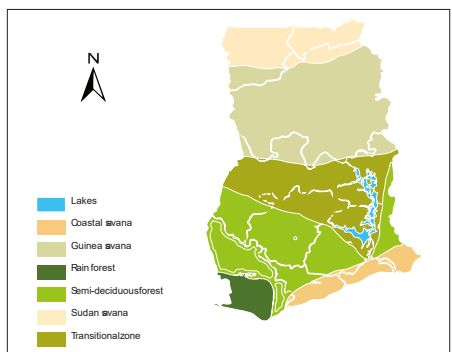


### GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Tied-ridging, bunding, Zai method, cover cropping. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	"Side placement Seed inoculation is recommended "
Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water management	See "Soil and Water Conservation Techniques"
Pest management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping system	Rotate with cereals



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SEMI-ARID AND SUB-HUMID**



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA AND GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Peanut (Groundnut)
Variety Name	Crops-Abakan
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	50
Seed unit	kg/ha
Spacing	40 cm x 10 cm
Grain/Flesh Color	Tan
Sowing/Planting Period	June - July
Production System	Rainfall
Number of days sowing/planting - maturity	90-95
Potential yield	
Country average	
Pest resistance	
Disease resistance	
Other stresses	



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 14-31-0 +9S +1Zn +1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

20N-60P2O5-30K2O+1.2Zn

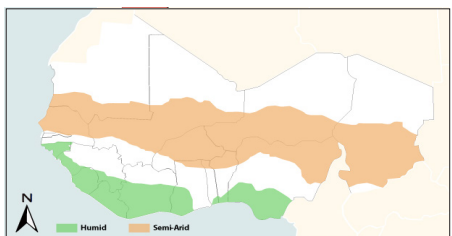
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

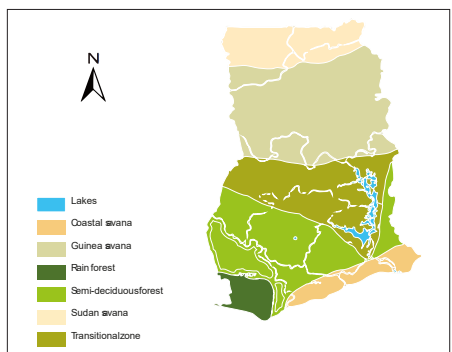


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Tied-ridging, bunding, Zai method, cover cropping. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	Side placement. Seed inoculation is recommended
Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water management	See "Soil and Water Conservation Techniques"
Pest management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping system	Rotate with cereals



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SEMI-ARID AND SUB-HUMID**

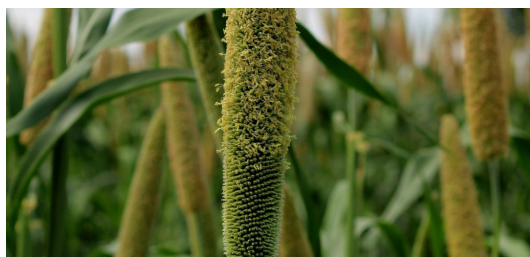


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA AND GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Peanut (Groundnut)
Variety Name	Crops-Agbeyeye
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	50
Seed unit	kg/ha
Spacing	40 cm x 10 cm
Grain/Flesh Color	Brown
Sowing/Planting Period	June - July
Production System	Rainfall
Number of days sowing/planting - maturity	90-95
Potential yield	2.3
Country average	2.3
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	Protein: 32.68%, Fat: 47.75%, Fibre: 1.59%, Carbohydrate: 9.23
Other qualities	High Biomass: 4.2 tons/ha



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 14-31-0 +9S +1Zn +1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+ 1.2Zn"

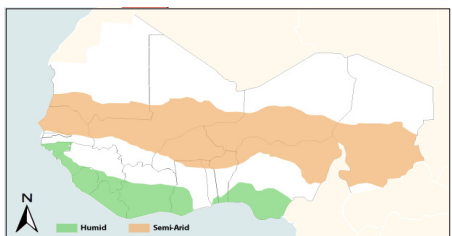
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

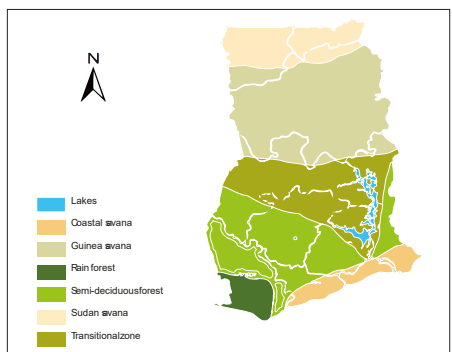


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Tied-ridging, bunding, Zai method, cover cropping. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	Side placement. Seed inoculation is recommended
Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water management	See "Soil and Water Conservation Techniques"
Pest management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping system	Rotate with cereals



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SEMI-ARID AND SUB-HUMID**

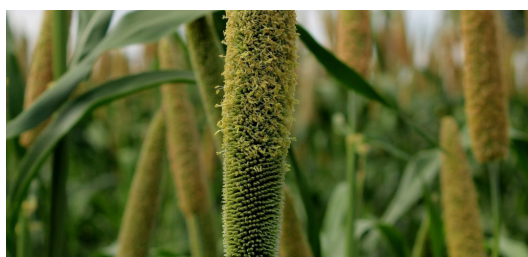


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA AND GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Peanut (Groundnut)
Variety Name	Crops-PION
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	50
Seed unit	kg/ha
Spacing	40 cm x 10 cm
Grain/Flesh Color	Tan
Sowing/Planting Period	June - July
Production System	Rainfall
Number of days sowing/planting - maturity	90-95
Potential yield	2.8 tonnes/ha
Country average	2.8 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	% Protein: 33.32; % Fat: 44.52; % Fibre: 1.8; % Carbohydrate: 12.33
Other qualities	



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 14-31-0 +9S +1Zn +1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+ 1.2Zn"

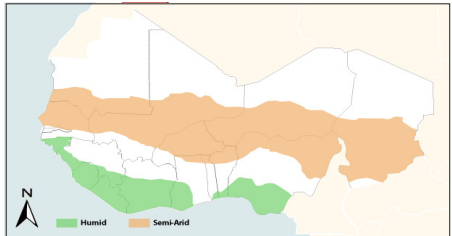
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

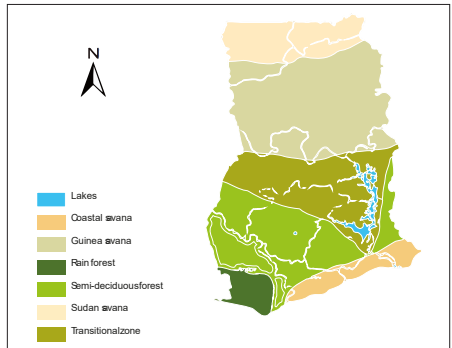


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Tied-ridging, bunding, Zai method, cover cropping. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	Side placement. Seed inoculation is recommended
Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water management	See "Soil and Water Conservation Techniques"
Pest management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping system	Rotate with cereals



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SEMI-ARID AND SUB-HUMID**



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA AND GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Peanut (Groundnut)
Variety Name	Edorpo-Munikpa
Local name	
Synonym	
Variety Type	Pure line
Quantity of seed (kg/hectare)	50
Seed unit	kg/ha
Spacing	40 cm x 10 cm
Grain/Flesh Color	Dark tan testa color
Sowing/Planting Period	June - July
Production System	Rainfall
Number of days sowing/planting - maturity	90
Potential yield	2.0 tonnes/ha
Country average	2.0 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Moderately resistant to early and late leaf spot infections caused by <i>Cercospora arachidicola</i> S. Hori and <i>Cercosporidium personatum</i> (Berk. & Curt.) Deighton, respectively
Nutritional quality	Contains 48% oil.
Other qualities	Suitable for all ecologies in northern Ghana; Suitable for oil extraction and confectionary products



## FERTILIZER SPECIFICATION 1

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION 2

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION 3

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (2.5 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+ 1.2Zn"

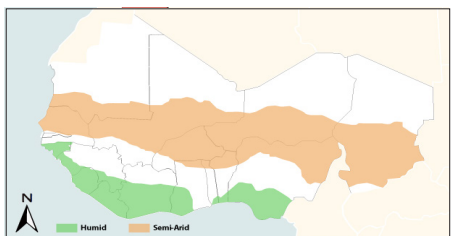
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

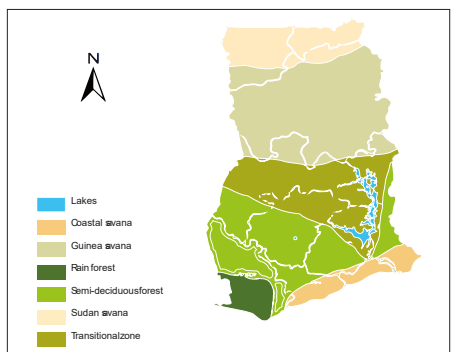


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Tied-ridging, bunding, Zai method, cover cropping. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	Side placement. Seed inoculation is recommended
Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water management	See "Soil and Water Conservation Techniques"
Pest management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping system	Rotate with cereals



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA AND GUINEA SAVANNA

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Peanut (Groundnut)
Variety Name	Gusie-Balin
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	50
Seed unit	kg/ha
Spacing	40 cm x 10 cm
Grain/Flesh Color	Tan
Sowing/Planting Period	June - July
Production System	Rainfall
Number of days sowing/planting - maturity	100-110
Potential yield	2.0
Country average	2.0
Pest resistance	
Disease resistance	Resistant to leaf spot infections
Other stresses	
Nutritional quality	Oil content; 46%.
Other qualities	Suitable for a range of confectionery products



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (2.5 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+ 1.2Zn"

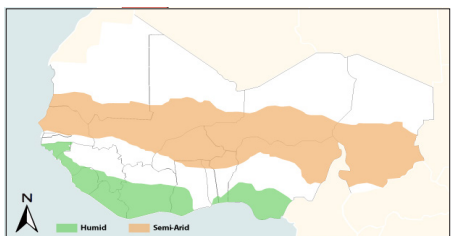
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

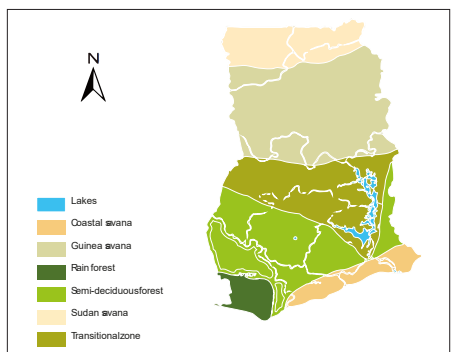


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Tied-ridging, bunding, Zai method, cover cropping. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	Side placement. Seed inoculation is recommended
Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water management	See "Soil and Water Conservation Techniques"
Pest management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping system	Rotate with cereals



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SEMI-ARID AND SUB-HUMID**

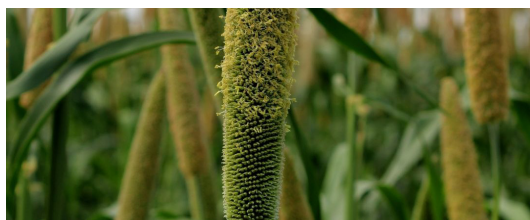


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA AND GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Peanut (Groundnut)
Variety Name	Kpanieli
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	50
Seed unit	kg/ha
Spacing	40 cm x 10 cm
Grain/Flesh Color	Red testa color
Sowing/Planting Period	June - July
Production System	Rainfall
Number of days sowing/planting - maturity	120
Potential yield	2.5 tonnes/ha
Country average	2.5 tonnes/ha
Pest resistance	
Disease resistance	Resistant to early and late leaf spot.
Other stresses	
Nutritional quality	The seed is composed of 51% oil.
Other qualities	Suitable for commercial oil extraction



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (2.5 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+ 1.2Zn"

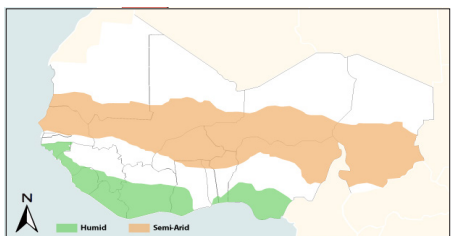
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

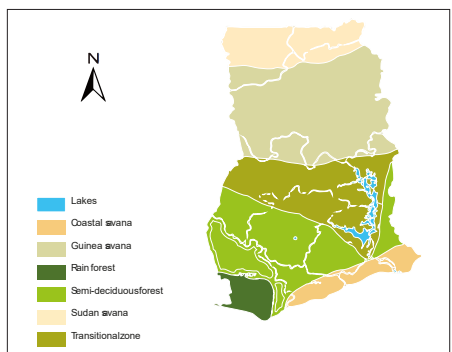


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Tied-ridging, bunding, Zai method, cover cropping. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	"Side placement Seed inoculation is recommended "
Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water management	See "Soil and Water Conservation Techniques"
Pest management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping system	Rotate with cereals



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID

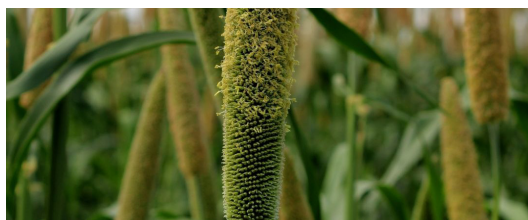


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA AND GUINEA SAVANNA

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Peanut (Groundnut)
Variety name	Nkatie-sari
Local name	
Synonym	
Variety Type	Pure line
Quantity of seed (kg/hectare)	50
Seed Unit	kg/ha
Spacing	40 cm x 10 cm
Grain/Flesh Color	light tan testa
Planting / Sowing Time	June - July
Production System	Rainfall
Number of days from sowing / planting to maturity	110
Potential Yield	2.1 tonnes/ha
Country Average	2.1 tonnes/ha
Pest resistance	
Disease resistance	Resistant to early and late leafspot infections caused by <i>Cercospora arachidicola</i> S. Hori and <i>Cercosporidium personatum</i> . Rosette resistance
Other stresses	
Nutritional quality	
Other qualities	Has a high kernel yield with good fresh seed dormancy



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (3 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+1.2Zn. For farm specific recommendations, farmers should conduct soil testing"

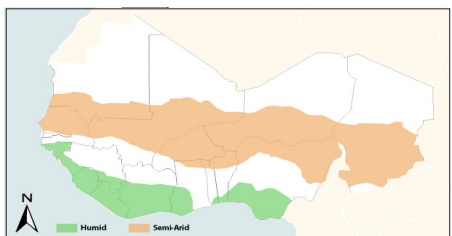
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

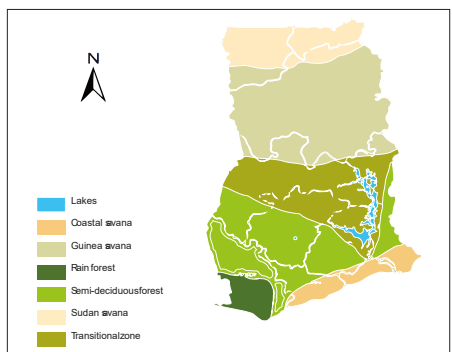


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Tied-ridging, bunding, Zai method, cover cropping. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	"Side placement Seed inoculation is recommended "
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest Management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping System	Rotate with cereals



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SEMI-ARID AND SUB-HUMID**

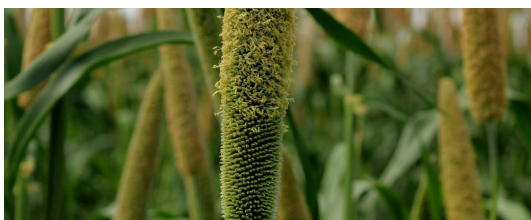


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA AND GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Peanut (Groundnut)
Variety Name	Obolo
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	50
Seed unit	kg/ha
Spacing	0.40m x 0.10m
Grain/Flesh Color	Tan
Sowing/Planting Period	June - July
Production System	Rainfall
Number of days sowing/planting - maturity	120
Potential yield	2.7 tonnes/ha
Country average	2.7 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	
Other qualities	



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+ 1.2Zn"

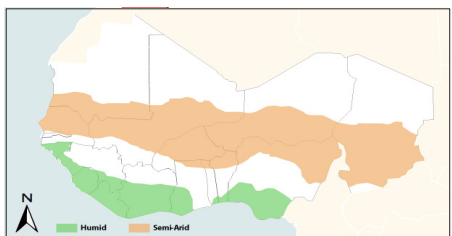
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

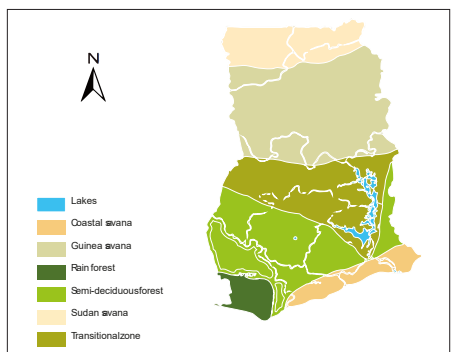


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Tied-ridging, bunding, Zai method, cover cropping. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	"Side placement Seed inoculation is recommended "
Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water management	See "Soil and Water Conservation Techniques"
Pest management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping system	Rotate with cereals



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA AND GUINEA SAVANNA

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

DESCRIPTION	
Crop	Peanut (Groundnut)
Variety Name	Oboshie
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/ha)	50
Seed unit	kg/ha
Spacing	40 cm x 10 cm
Grain/Flesh Color	Brown
Sowing/Planting Period	June - July
Production System	Rainfall
Number of days sowing/planting - maturity	105-110
Potential yield	2.6 tonnes/ha
Country average	2.6 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	% Protein: 34.13; % Fat: 46.49; % Fibre: 4.54; % Carbohydrate: 6.78; % WBC :266.15; % Solubility
Other qualities	Good flavour; Sweet taste; Confectionery



FERTILIZER SPECIFICATION 1	
Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

FERTILIZER SPECIFICATION 2	
Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

FERTILIZER SPECIFICATION 3	
Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

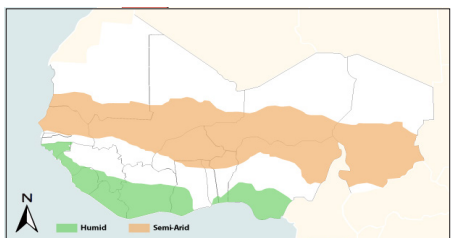
NUTRIENT RECOMMENDATION	
Application rate:	"20N-60P2O5-30K2O+ 1.2Zn"

ORGANIC FERTILIZER RECOMMENDATION	
Application rate:	Organic manure, Compost
Time of Application:	When possible

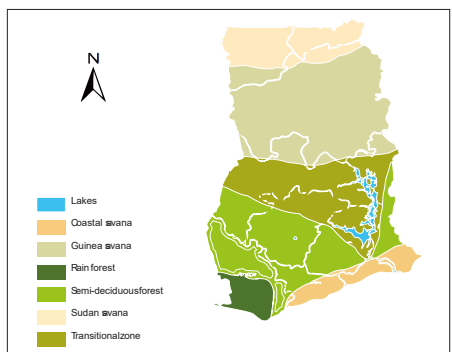


### GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Tied-ridging, bunding, Zai method, cover cropping. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	"Side placement Seed inoculation is recommended "
Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water management	See "Soil and Water Conservation Techniques"
Pest management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping system	Rotate with cereals



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SEMI-ARID AND SUB-HUMID**



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA AND GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Peanut (Groundnut)
Variety Name	Sarinut I
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	50
Seed unit	kg/ha
Spacing	40 cm x 10 cm
Grain/Flesh Color	Deep red
Sowing/Planting Period	June - July
Production System	Rainfall
Number of days sowing/planting - maturity	120
Potential yield	2.6 tonnes/ha
Country average	2.6 tonnes/ha
Pest resistance	
Disease resistance	Disease resistance: resistance to early and late leaf spot
Other stresses	
Nutritional quality	Oil content of kernel: 51%; Protein content : 25 %;
Other qualities	High oleic; Confectionery and oil extraction



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+ 1.2Zn"

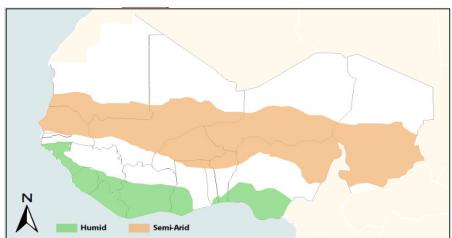
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

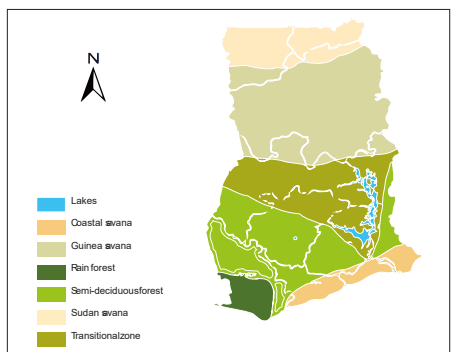


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Tied-ridging, bunding, Zai method, cover cropping. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	"Side placement Seed inoculation is recommended "
Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water management	See "Soil and Water Conservation Techniques"
Pest management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping system	Rotate with cereals



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SEMI-ARID AND SUB-HUMID**

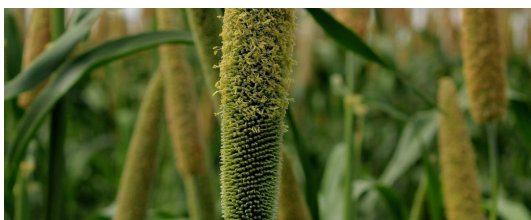


COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA AND GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Peanut (Groundnut)
Variety Name	Sarinut 2
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/hectare)	50
Seed unit	kg/ha
Spacing	0.40m x 0.10m
Grain/Flesh Color	Light tan
Sowing/Planting Period	June - July
Production System	Rainfall
Number of days sowing/planting - maturity	92
Potential yield	2.4 tonnes/ha
Country average	2.4 tonnes/ha
Pest resistance	
Disease resistance	Disease resistance: resistance to early and late leaf spot
Other stresses	
Nutritional quality	Oil content of kernel : 45%; Protein content : 36%
Other qualities	Confectionery



## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+ 1.2Zn"

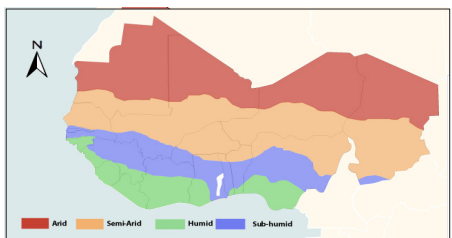
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

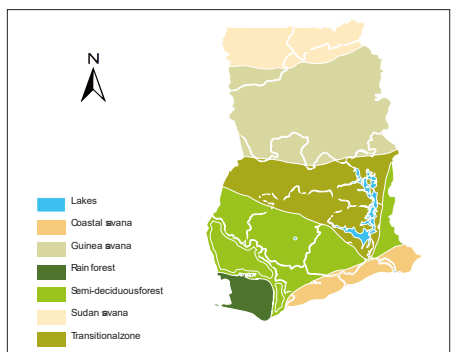


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Tied-ridging, bunding, Zai method, cover cropping. Minimum/zero tillage is also a recommended land preparation method when possible. Water harvesting techniques
Method of fertilizer application	"Side placement Seed inoculation is recommended "
Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water management	See "Soil and Water Conservation Techniques"
Pest management	Integrated Pest Management
Weed Control	Good agricultural practices (mechanical weeding where applicable) and combinations of herbicides can be adopted
Cropping system	Rotate with cereals



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Rice
Variety name	CSIR-Banse rice
Local name	Banse
Synonym	
Variety Type	Inbred line
Quantity of seed (kg/ hectare)	20-50
Seed Unit	kg/ha
Spacing	20 cm x 20 cm
Grain/Flesh Color	White
Planting / Sowing Time	June-July
Production System	Rainfall
Number of days from sowing / planting to maturity	125-130
Potential Yield	7-8 tonnes/ha
Country Average	7-8 tonnes/ha
Pest resistance	
Disease resistance	Blast tolerance
Other stresses	Lodging
Nutritional quality	
Other qualities	Non aromatic, medium grain

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea)  
"

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	10.5 kg of MOP (0.2 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	50 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



Application rate:	If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants
Time of Application	When possible



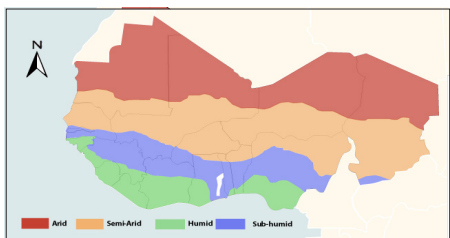
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



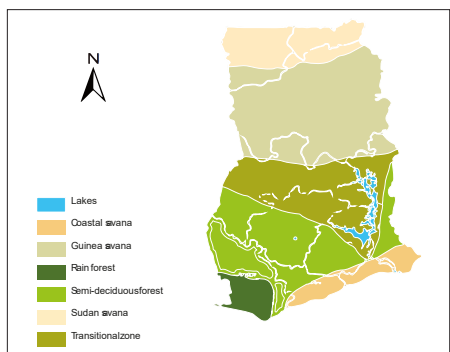
Soil and Water Conservation Techniques	"Lowland: Plough, bund and rotovate Upland: Plough, harrow and bund (if possible) use of cover crops, SAWAH technology Irrigated: flushing with fresh water to control salt and iron toxicity . Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"NPK: Banding and broadcasting Urea: Deep placement"
Soil Amendments	"Add organic manure when necessary, gypsum and Biochar Upland: lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity"
Water Management	See "Soil and Water Conservation Techniques"
Pest & Disease Management	Monitor and scare Quelea Quelea, set trap for rodents. Seed treatment against blast, brown spot and bacteria leaf blight, control for rice yellow mottled virus (RYMV)
Weed Control	Good agricultural practices (Integrated weed management) and combinations of herbicides can be adopted. Pre-emergence, early post and post emergence herbicides
Cropping System	"Rotation: with grain legumes and vegetables on the same field over time is recommended. Rice-fish culture"



083\_CSIR-Banse rice\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Rice
Variety name	CSIR Savanna
Local name	Savanna
Synonym	
Variety Type	Inbred line
Quantity of seed (kg/hectare)	20-50
Seed Unit	kg/ha
Spacing	20 cm x 20 cm
Grain/Flesh Color	White
Planting / Sowing Time	June-July
Production System	Rainfall
Number of days from sowing / planting to maturity	125-130
Potential Yield	7-8 tonnes/ha
Country Average	7-8 tonnes/ha
Pest resistance	
Disease resistance	Blast tolerance
Other stresses	
Nutritional quality	Non aromatic
Other qualities	long grain

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea)  
"

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	10.5 kg of MOP (0.2 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	50 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



Application rate: If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants

Time of Application When possible

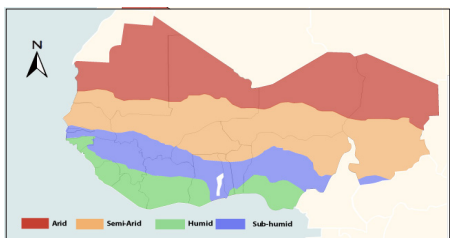


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

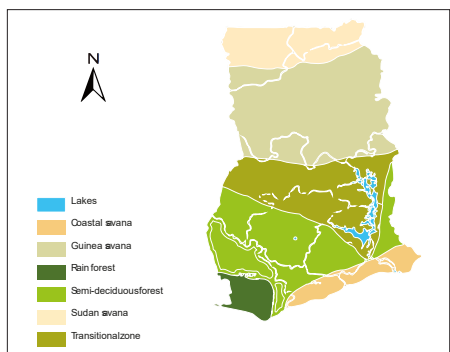


Soil and Water Conservation Techniques	"Lowland: Plough, bund and rotovate Upland: Plough, harrow and bund (if possible) use of cover crops, SAWAH technology Irrigated: flushing with fresh water to control salt and iron toxicity . Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"NPK: Banding and broadcasting Urea: Deep placement"
Soil Amendments	"Add organic manure when necessary, gypsum and Biochar Upland: lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity"
Water Management	See "Soil and Water Conservation Techniques"
Pest & Disease Management	Monitor and scare Quelea Quelea, set trap for rodents. Seed treatment against blast, brown spot and bacteria leaf blight, control for rice yellow mottled virus (RYMV)
Weed Control	Good agricultural practices (Integrated weed management) and combinations of herbicides can be adopted. Pre-emergence, early post and post emergence herbicides
Cropping System	"Rotation: with grain legumes and vegetables on the same field over time is recommended. Rice-fish culture"

085\_CSIR-Savanna\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Rice
Variety name	IR 841
Local name	AGRA RICE
Synonym	
Variety Type	Pure line
Quantity of seed (kg/ hectare)	15-30
Seed Unit	kg/ha
Spacing	20 cm x 20 cm
Grain/Flesh Color	White
Planting / Sowing Time	July (rainfed), Dec - Jan (Off-season)
Production System	Rainfall
Number of days from sowing / planting to maturity	125-130
Potential Yield	8 tonnes/ha
Country Average	8 tonnes/ha
Pest resistance	
Disease resistance	Tolerant to rice blast
Other stresses	Drought, Salinity, Fe Toxicity, Cold resistance, lodging, Acidity
Nutritional quality	Quality protein, Vitamin A, Micronutrients
Other qualities	Long grain, Aromatic, Cooking quality, etc

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea). For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	10.5 kg of MOP (0.2 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	50 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



Application rate:	If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants
Time of Application	When possible

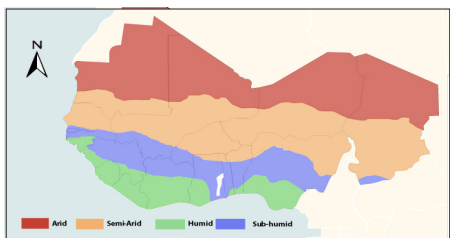


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

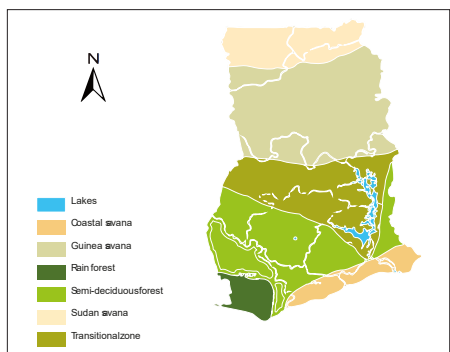


Soil and Water Conservation Techniques	"Lowland: Plough, bund and rotovate Upland: Plough, harrow and bund (if possible) use of cover crops, SAWAH technology Irrigated: flushing with fresh water to control salt and iron toxicity . Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"NPK: Banding and broadcasting Urea: Deep placement"
Soil Amendments	"Add organic manure when necessary, gypsum and Biochar Upland: lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity"
Water Management	See "Soil and Water Conservation Techniques"
Pest & Disease Management	Monitor and scare Quelea Quelea, set trap for rodents. Seed treatment against blast, brown spot and bacteria leaf blight, control for rice yellow mottled virus (RYMV).
Weed Control	Good agricultural practices (Integrated weed management) and combinations of herbicides can be adopted. Pre-emergence, early post and post emergence herbicides
Cropping System	"Rotation: with grain legumes and vegetables on the same field over time is recommended Rice-fish culture. "

087\_IR 841\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Rice
Variety name	Jasmine 85
Local name	Gbewaa Rice
Synonym	
Variety Type	Pure line
Quantity of seed (kg/ hectare)	15-30
Seed Unit	kg/ha
Spacing	20 cm x 20 cm
Grain/Flesh Color	White
Planting / Sowing Time	July (rainfed), Dec - Jan (Off-season)
Production System	Rainfall
Number of days from sowing / planting to maturity	110-115
Potential Yield	5-6 tonnes/ha
Country Average	5-6 tonnes/ha
Pest resistance	
Disease resistance	Tolerant to rice blast
Other stresses	Drought, Salinity, Fe Toxicity, Cold resistance, lodging, Acidity
Nutritional quality	Quality protein, Vitamin A, Micronutrients
Other qualities	Long grain, Aromatic, Cooking quality, etc

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea). For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	10.5 kg of MOP (0.2 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	50 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



Application rate:	If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants
Time of Application	When possible

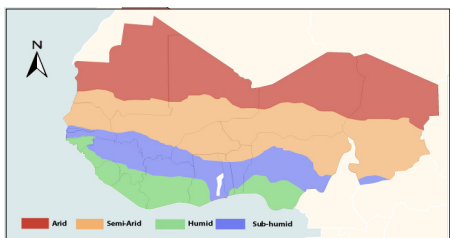


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

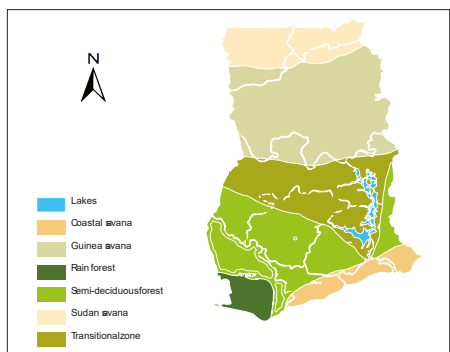


Soil and Water Conservation Techniques	"Lowland: Plough, bund and rotovate Upland: Plough, harrow and bund (if possible) use of cover crops, SAWAH technology Irrigated: flushing with fresh water to control salt and iron toxicity . Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"NPK: Banding and broadcasting Urea: Deep placement"
Soil Amendments	"Add organic manure when necessary, gypsum and Biochar Upland: lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity"
Water Management	See "Soil and Water Conservation Techniques"
Pest & Disease Management	Monitor and scare Quelea Quelea, set trap for rodents. Seed treatment against blast, brown spot and bacteria leaf blight, control for rice yellow mottled virus (RYMV)
Weed Control	Good agricultural practices (Integrated weed management) and combinations of herbicides can be adopted. Pre-emergence, early post and post emergence herbicides
Cropping System	"Rotation: with grain legumes and vegetables on the same field over time is recommended for midland and upland fields Rice-fish culture. "

089\_Jasmine 85\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
ALL AGROECOLOGY



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE

**TRANSITIONAL ZONE, COASTAL SAVANNA, RAIN FOREST, SEMI-DECIDUOUS FOREST, SUDAN SAVANNA, GUINEA SAVANNA**  
Isohyet range 600-1800 Coastal Savanna (600-1800), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Rice
Variety name	CSIR-Malimali
Local name	Malimali
Synonym	
Variety Type	Inbred line
Quantity of seed (kg/ hectare)	20-50
Seed Unit	kg/ha
Spacing	20 cm x 20 cm
Grain/Flesh Color	White
Planting / Sowing Time	June-July (rainfed)
Production System	Rainfall
Number of days from sowing / planting to maturity	125-130
Potential Yield	7-8 tonnes/ha
Country Average	7-8 tonnes/ha
Pest resistance	
Disease resistance	Blast tolerance
Other stresses	Lodging
Nutritional quality	Slightly aromatic
Other qualities	long grain

## NUTRIENT RECOMMENDATION

"90N-60P2O5-60K2O+2.1Zn (Transition, semi-deciduous and rain forest)  
100N-40P2O5-40K2O+2.1Zn (Sudan and Guinea)  
"

## FERTILIZER SPECIFICATION

Application rate:	300 kg of NPK 15-20-20 + 0.7Zn (5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	175 kg Urea (3.5 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	275 kg of NPK 11-22-21 +5S+ 0.7Zn+0.5B (5.5 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	100 kg Urea (2 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 15-20-20 + 0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	150 kg Urea (3 bags x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

Application rate:	450 kg of NPK 23-10-5+2MgO+3S+0.3Zn (9 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	10.5 kg of MOP (0.2 bag x 50 kg/ha)
Time of Application:	3-5 weeks after planting or split application; first top dress, 1 bag 3-4 weeks after planting and second top dress 1 bag 5-6 weeks after planting

## FERTILIZER SPECIFICATION

7

Application rate:	400 kg of NPK 20-10-10+3S (8 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 2 bags 4 week after planting
Application rate:	50 kg Urea (1 bag x 50 kg/ha)
Time of Application:	6 weeks after planting



## ORGANIC FERTILIZER RECOMMENDATION



Application rate: If available add any of the following :Organic manure, Compost, Biofertilizers, Biostimulants

Time of Application When possible



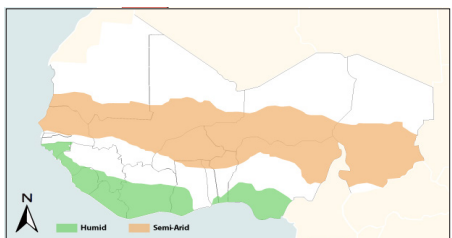
## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT



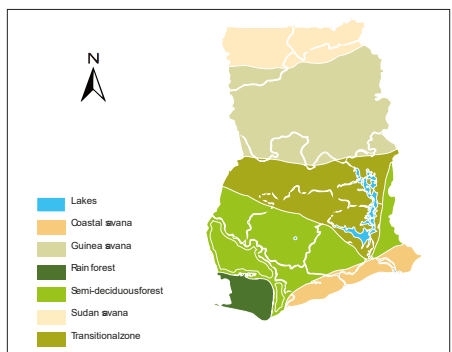
Soil and Water Conservation Techniques	"Lowland: Plough, bund and rotovate Upland: Plough, harrow and bund (if possible) use of cover crops, SAWAH technology Irrigated: flushing with fresh water to control salt and iron toxicity . Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"NPK: Banding and broadcasting Urea: Deep placement"
Soil Amendments	"Add organic manure when necessary, gypsum and Biochar Upland: lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity"
Water Management	See "Soil and Water Conservation Techniques"
Pest & Disease Management	Monitor and scare Quelea Quelea, set trap for rodents. Seed treatment against blast, brown spot and bacteria leaf blight, control for rice yellow mottled virus (RYMV)
Weed Control	Good agricultural practices (Integrated weed management) and combinations of herbicides can be adopted . Pre-emergence, early post and post emergence herbicides
Cropping System	"Rotation: with grain legumes and vegetables on the same field over time is recommended for midlands and uplands Rice-fish culture"



091\_CSIR-Malimali\_Ghana Version 1.1



WEST AFRICA AGRO-ECOLOGICAL ZONE  
**SEMI-ARID AND SUB-HUMID**



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA, GUINEA SAVANNA**

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Sorghum
Variety Name	Dorado
Local name	
Synonym	
Variety Type	Pure line
Quantity of seed (kg/hectare)	10
Seed unit	kg/ha
Spacing	75 cm x 30 cm
Grain/Flesh Color	white with red glumes
Sowing/Planting Period	June-July
Production System	Rainfall
Number of days sowing/planting - maturity	110-115
Potential yield	3.5 tonnes/ha
Country average	3.5 tonnes/ha
Pest resistance	
Disease resistance	Susceptible to head bug grain mould complex particularly if maturity coincides with heavy rainfall
Other stresses	
Nutritional quality	
Other qualities	Very good food, malting and brewing qualitie

## NUTRIENT RECOMMENDATION

“80N-60P2O5-60K2O+1.2Zn  
 “

## FERTILIZER SPECIFICATION 1

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	75 kg of Urea (1.5 bags of 50 kg /ha)
Time of Application:	3-5 weeks after planting

## FERTILIZER SPECIFICATION 3

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (3 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	63 kg of MOP (1.3 bags of 50 kg /ha)
Time of Application:	At planting (together with the first 6 bags)

## FERTILIZER SPECIFICATION 2

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	110 kg of Urea (2.2 bags x 50kg/kha)
Time of Application:	3-5 weeks after planting

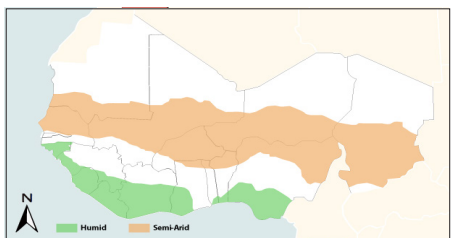
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

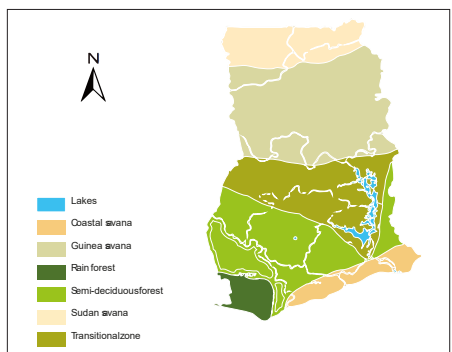


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water management	See "Soil and Water Conservation Techniques"
Pest management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. Herbicides and GAP
Cropping system	Rotation (sorghum and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA, GUINEA SAVANNA

Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Sorghum
Variety Name	Kapaala
Local name	
Synonym	
Variety Type	Pure line
Quantity of seed (kg/hectare)	10
Seed unit	kg/ha
Spacing	75 cm x 30 cm
Grain/Flesh Color	white with colourless glumes
Sowing/Planting Period	June - July
Production System	Rainfall
Number of days sowing/planting - maturity	100-110
Potential yield	4 tonnes/ha
Country average	4 tonnes/ha
Pest resistance	
Disease resistance	Susceptible to head bug grain mould complex particularly if maturity coincides with heavy rainfall
Other stresses	
Nutritional quality	
Other qualities	Very good food, malting and brewing qualitie

## NUTRIENT RECOMMENDATION

"80N-60P2O5-60K2O+1.2Zn"

## FERTILIZER SPECIFICATION ①

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	75 kg of Urea (1.5 bags of 50 kg/ha)
Time of Application:	3-5 weeks after planting

## FERTILIZER SPECIFICATION ③

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (3 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting
Application rate:	63 kg of MOP (1.3 bags of 50 kg/ha)
Time of Application:	At planting (together with the first 6 bags)

## FERTILIZER SPECIFICATION ②

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting
Application rate:	110 kg of Urea (2.2 bags x 50kg/kha)
Time of Application:	3-5 weeks after planting

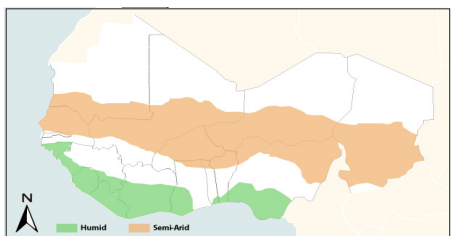
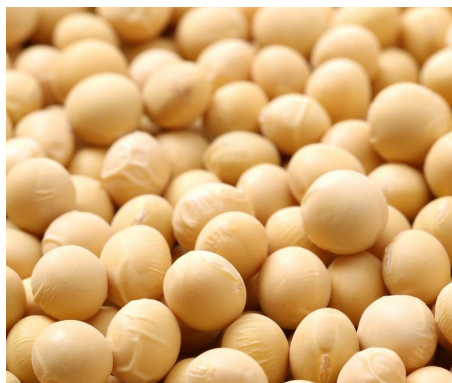
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

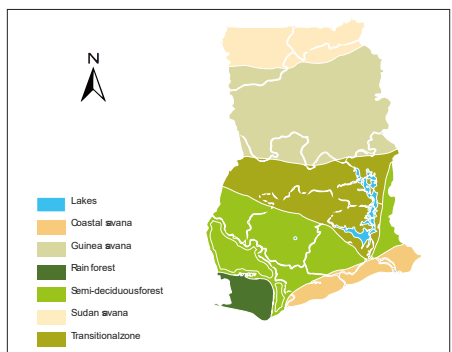


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible
Method of fertilizer application	Side placement for NPK and burying for Urea fertilizers
Amendments	Add organic manure when necessary, Biochar, lime and rock phosphate. Lime, rock phosphate and biochar to reduce soil acidity
Water management	See "Soil and Water Conservation Techniques"
Pest management	Scout for insects and apply pesticide (IPM) especially for Fall Army Worms
Weed Control	Good agricultural practices (mechanical weeding) and combinations of herbicides can be adopted. Herbicides and GAP
Cropping system	Rotation (sorghum and legumes on the same field over time is recommended. E.g. rotation, inter-cropping/mixed cropping, Continuous monocropping



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA, GUINEA SAVANNA, TRANSITIONAL ZONE  
Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Soybean
Variety name	Afayak
Local name	
Synonym	
Variety Type	Inbred line
Quantity of seed (kg/ hectare)	40
Seed Unit	kg/ha
Spacing	60 cm x 5 cm. Drilling is recommended
Grain/Flesh Color	Cream
Planting / Sowing Time	July - August
Production System	Rainfall
Number of days from sowing / planting to maturity	110-115
Potential Yield	2-2.4 tonnes/ha
Country Average	2-2.4 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Above average tolerance to common soybean pests and diseases
Nutritional quality	Protein content: 38%, Oil content: 18%; Carbohydrate content: 36%
Other qualities	Excellent seed quality; Good seed storability; High and stable yield across many environments

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+1.2Zn. For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION 1

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION 3

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (3 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting

## FERTILIZER SPECIFICATION 2

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

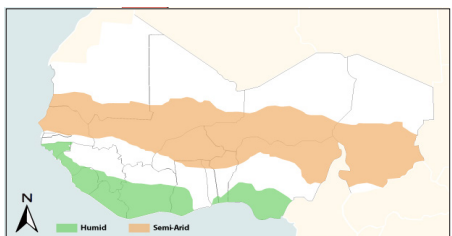
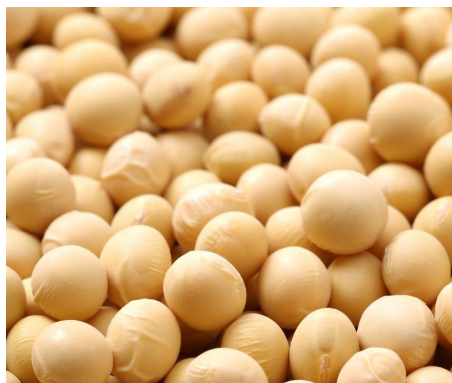
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

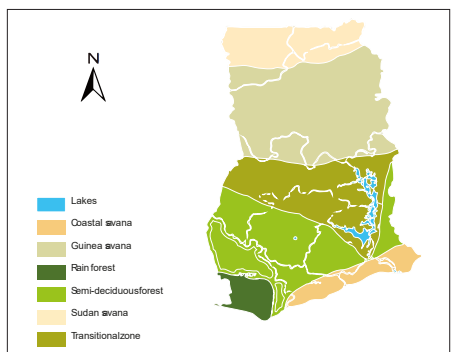


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended"
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest & Disease Management	Integrated Pest Management
Weed Control	Good agricultural practices (Integrated weed management) and combinations of herbicides can be adopted. Pre-emergence, early post and post emergence herbicides
Cropping System	"Rotation with cereals where applicable Intercropping with maize where applicable. At least plant in 3 years rotation"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA, GUINEA SAVANNA, TRANSITIONAL ZONE  
Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Soybean
Variety name	Anidaso
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/ hectare)	40
Seed Unit	kg/ha
Spacing	60 cm x 5 cm. Drilling is recommended
Grain/Flesh Color	Cream
Planting / Sowing Time	July - August
Production System	Rainfed
Number of days from sowing / planting to maturity	105-115
Potential Yield	1.2-2.8 tonnes/ha
Country Average	1.2-2.8 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	
Nutritional quality	
Other qualities	
Other qualities	

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+1.2Zn. For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION ①

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION ③

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (3 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting

## FERTILIZER SPECIFICATION ②

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

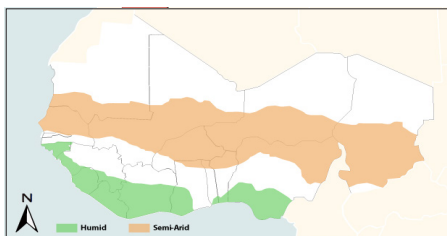
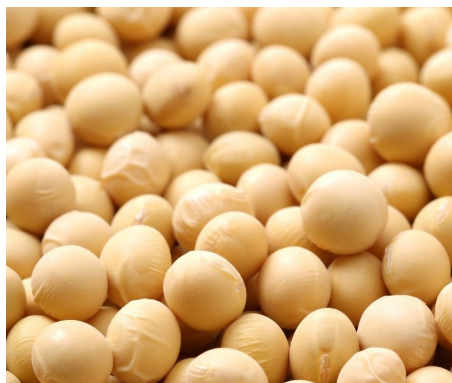
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

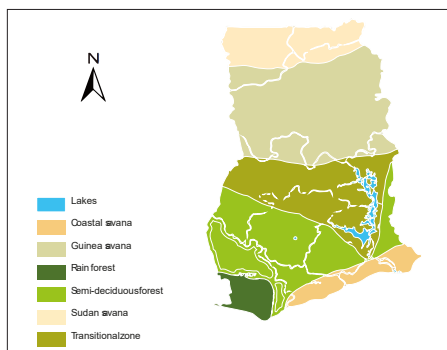


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended"
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest & Disease Management	Integrated Pest Management
Weed Control	Good agricultural practices (Integrated weed management) and combinations of herbicides can be adopted. Pre-emergence, early post and post emergence herbicides
Cropping System	"Rotation with cereals where applicable Intercropping with maize where applicable. At least plant in 3 years rotation"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA, GUINEA SAVANNA, TRANSITIONAL ZONE**  
 Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Soybean
Variety name	CSIR-Favour
Local name	Favour
Synonym	
Variety Type	
Quantity of seed (kg/ hectare)	40
Seed Unit	kg/ha
Spacing	60 cm x 5 cm. Drilling is recommended
Grain/Flesh Color	Cream
Planting / Sowing Time	July - August
Production System	Rainfall
Number of days from sowing / planting to maturity	115-118
Potential Yield	2-3.5 tonnes/ha
Country Average	2-3.5 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Resistance to pod shattering (up to 5% shattering), Fairly tolerant to common soybean pests and diseases
Nutritional quality	Contains up 43% protein; 18% oil content; Carbohydrate: 39.9%.
Other qualities	Excellent seed quality for soymilk; High and stable yield across many environments
Other qualities	

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+1.2Zn. For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION 1

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION 3

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (3 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting

## FERTILIZER SPECIFICATION 2

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

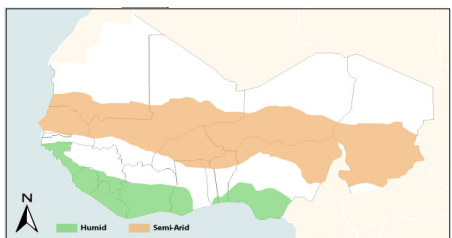
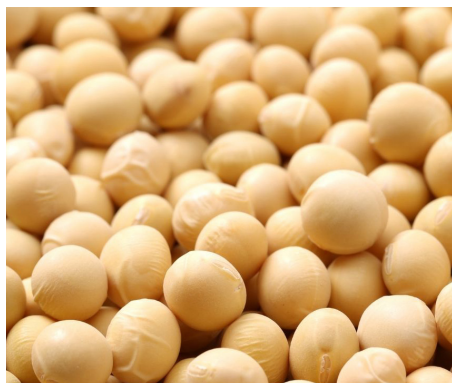
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

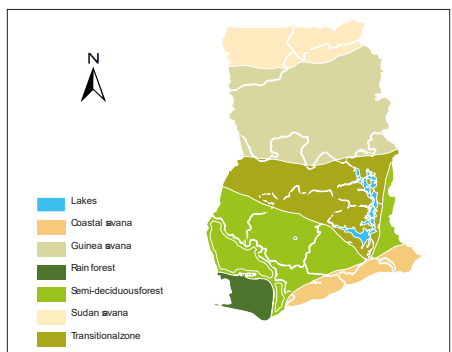


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended"
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest & Disease Management	Integrated Pest Management
Weed Control	Good agricultural practices (Integrated weed management) and combinations of herbicides can be adopted. Pre-emergence, early post and post emergence herbicides
Cropping System	"Rotation with cereals where applicable Intercropping with maize where applicable. At least plant in 3 years rotation"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA, GUINEA SAVANNA, TRANSITIONAL ZONE**  
 Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Soybean
Variety name	Jenguma
Local name	
Synonym	
Variety Type	Inbred line
Quantity of seed (kg/ hectare)	40
Seed Unit	kg/ha
Spacing	60 cm x 5 cm
Grain/Flesh Color	Cream
Planting / Sowing Time	July - August
Production System	Rainfall
Number of days from sowing / planting to maturity	110-115
Potential Yield	2.5-2.8 tonnes/ha
Country Average	2.5-2.8 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Resistance to pod shattering (up to 3% shattering). tolerant to common soybean pests and diseases; relatively tolerant to low soil P; trap-crop for Striga hermonthica
Nutritional quality	Protein content: 38%, Oil content: 14%; Carbohydrate content: 37%.
Other qualities	Excellent seed quality; High and stable yield across many environments

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+1.2Zn. For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION ①

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION ③

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (3 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting

## FERTILIZER SPECIFICATION ②

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

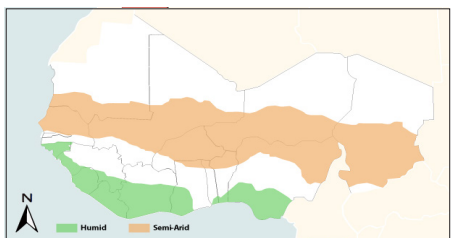
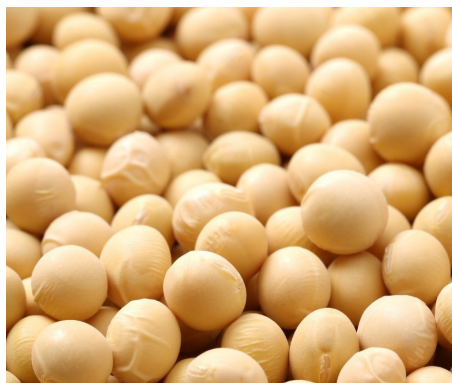
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

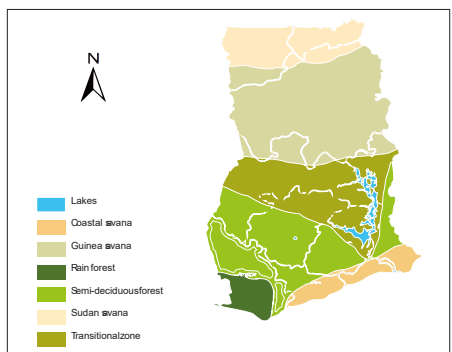


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended"
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest & Disease Management	Integrated Pest Management
Weed Control	Good agricultural practices (Integrated weed management) and combinations of herbicides can be adopted. Pre-emergence, early post and post emergence herbicides
Cropping System	"Rotation with cereals where applicable Intercropping with maize where applicable. At least plant in 3 years rotation"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA, GUINEA SAVANNA, TRANSITIONAL ZONE**  
 Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Soybean
Variety name	Salintuya-1
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/ hectare)	40
Seed Unit	kg/ha
Spacing	60 cm x 5 cm. Drilling is recommended
Grain/Flesh Color	Cream
Planting / Sowing Time	July - August
Production System	Rainfall
Number of days from sowing / planting to maturity	115
Potential Yield	2.2 tonnes/ha
Country Average	2.2 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Tolerance to diseases: tolerant to bacterial pustule and Cercospora leaf spot
Nutritional quality	
Other qualities	Excellent seed quality; good trap-crop for <i>S. hermonthica</i>
Other qualities	

## NUTRIENT RECOMMENDATION

**"20N-60P2O5-30K2O+1.2Zn**  
 For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION ①

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION ③

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (3 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting

## FERTILIZER SPECIFICATION ②

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

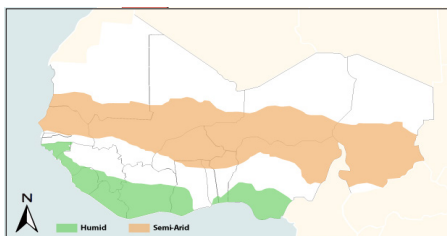
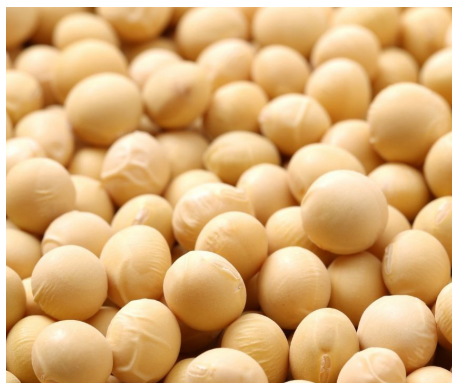
## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible

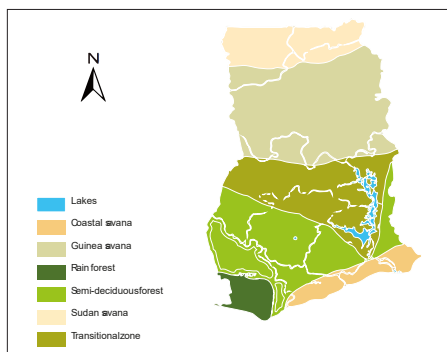


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended "
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest & Disease Management	Integrated Pest Management
Weed Control	Good agricultural practices (Integrated weed management) and combinations of herbicides can be adopted. Pre-emergence, early post and post emergence herbicides
Cropping System	"Rotation with cereals where applicable Intercropping with maize where applicable. At least plant in 3 years rotation"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
**SUDAN SAVANNA, GUINEA SAVANNA, TRANSITIONAL ZONE**  
 Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Soybean
Variety name	Salintuya-II
Local name	
Synonym	
Variety Type	
Quantity of seed (kg/ hectare)	40
Seed Unit	kg/ha
Spacing	60 cm x 5 cm. Drilling is recommended
Grain/Flesh Color	Cream
Planting / Sowing Time	July - August
Production System	Rainfall
Number of days from sowing / planting to maturity	130
Potential Yield	3.2 tonnes/ha
Country Average	3.2 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Tolerant to common soybean pests and diseases
Nutritional quality	
Other qualities	Excellent seed quality, high and stable yield across many environments
Other qualities	

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+1.2Zn  
 For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION

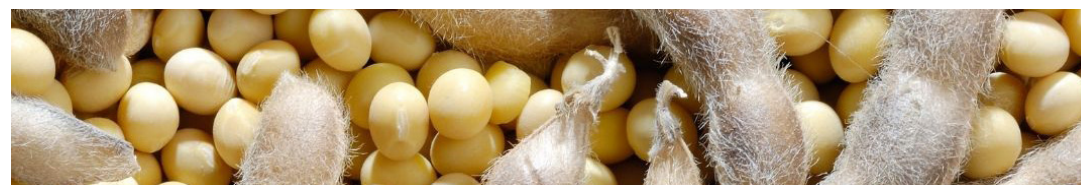
Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (3 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting

## FERTILIZER SPECIFICATION

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

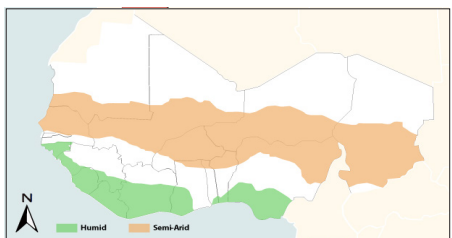
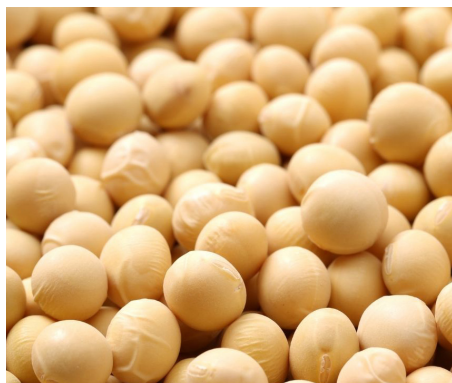
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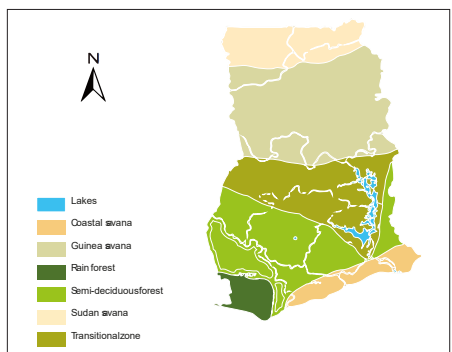


## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
Method of fertilizer application	"Drilling along the row and band placement Seed inoculation is recommended "
Soil Amendments	Compost, organic manure, rock phosphate, TSP could be applied
Water Management	See "Soil and Water Conservation Techniques"
Pest & Disease Management	Integrated Pest Management
Weed Control	Good agricultural practices (Integrated weed management) and combinations of herbicides can be adopted. Pre-emergence, early post and post emergence herbicides
Cropping System	"Rotation with cereals where applicable Intercropping with maize where applicable. At least plant in 3 years rotation"



WEST AFRICA AGRO-ECOLOGICAL ZONE  
SEMI-ARID AND SUB-HUMID



COUNTRY-SPECIFIC AGRO-ECOLOGICAL ZONE  
SUDAN SAVANNA, GUINEA SAVANNA, TRANSITIONAL ZONE  
Isohyet range 600-1800 Coastal Savanna (600-1200), Semi-Deciduous Forest (1200-1600), Transition Zone (1100-1600)

## DESCRIPTION

Crop	Soybean
Variety name	Suong-Pungun
Local name	
Synonym	
Variety Type	Inbred line
Quantity of seed (kg/ha)	40
Seed Unit	kg/ha
Spacing	60 cm x 5 cm. Drilling is recommended
Grain/Flesh Color	Cream
Planting / Sowing Time	July - August
Production System	Rainfall
Number of days from sowing / planting to maturity	85-92
Potential Yield	1.5-1.8 tonnes/ha
Country Average	1.5-1.8 tonnes/ha
Pest resistance	
Disease resistance	
Other stresses	Resistance to pod shattering (less than 5%); Fairly tolerance to common soybean pests and diseases
Nutritional quality	
Other qualities	Excellent seed quality; Good seed storability; High and stable yield across many environment

## NUTRIENT RECOMMENDATION

"20N-60P2O5-30K2O+1.2Zn  
For farm specific recommendations, farmers should conduct soil testing"

## FERTILIZER SPECIFICATION ①

Application rate:	200 kg of NPK 12-30-17+0.7Zn (4 bags x 50 kg/ha)
Time of Application:	Apply at planting

## FERTILIZER SPECIFICATION ③

Application rate:	150 kg of NPK 14-31-0 +9S +1Zn +1B (3 bags x 50 kg/ha)
Time of Application:	Apply 6 bags at planting and 3 bags 4 week after planting

## FERTILIZER SPECIFICATION ②

Application rate:	100 kg of NPK 4-18-13 + 3S +3MgO +6CaO + 0.1B (2 bags x 50 kg/ha)
Time of Application:	Apply at planting

## ORGANIC FERTILIZER RECOMMENDATION

Application rate:	Organic manure, Compost
Time of Application:	When possible



## GOOD AGRICULTURAL PRACTICES (GAP) & MANAGEMENT

Soil and Water Conservation Techniques	"Plough and harrow where applicable, mulching, use of cover crops. Minimum/zero tillage is also a recommended land preparation method when possible. e.g. irrigation, water harvesting techniques"
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Cropping System	"Rotation with cereals where applicable Intercropping with maize where applicable. At least plant in 3 years rotation"



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