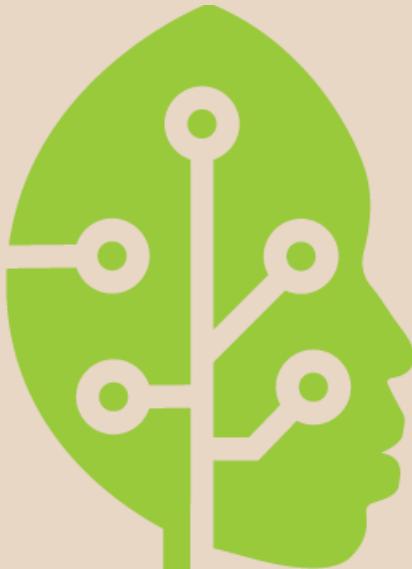


Hi there!



AKILIMO

we know cassava



You will learn all about

Hectare
version

Tailored fertilizer recommendations

and how to use our printable guides

in **6** easy steps



You will learn

You will learn

1 The importance of good agronomic practices

You will learn

- 
- 1** The importance of good agronomic practices
 - 2** How to choose the right fertilizer types

You will learn

1 The importance of good agronomic practices

2 How to choose the right fertilizer types

3 How to obtain the recommended fertilizer rate

You will learn

1 The importance of good agronomic practices

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4 How to evaluate if fertilizer use is profitable

You will learn

1 The importance of good agronomic practices

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5 When to apply the fertilizer

You will learn

1 The importance of good agronomic practices

2 How to choose the right fertilizer types

3 How to obtain the recommended fertilizer rate

4 How to evaluate if fertilizer use is profitable

5 When to apply the fertilizer

6 How to apply fertilizer correctly

You need to know

You need to know

1 Your location



You need to know



1 Your location

2 Your planting date

You need to know

1 Your location

2 Your planting date

3 Your current cassava yield (without fertilizer)

You need to know

1 Your location

2 Your planting date

3 Your current cassava yield (without fertilizer)

4 The price of fertilizer

You need to know

1 Your location

2 Your planting date

3 Your current cassava yield (without fertilizer)

4 The price of fertilizer

5 The expected price for your cassava roots

You need to know

1 Your location

2 Your planting date

3 Your current cassava yield (without fertilizer)

4 The price of fertilizer

5 The expected price for your cassava roots

6 Your land area

You will use AKILIMO guide

The screenshot shows a mobile application interface for cassava fertilizer application. At the top, there's a header with a cassava leaf icon, the title "Tailored Fertilizer Application Recommendations for Cassava", and logos for ACAI and AKILIMO. To the right is a vertical menu with six steps: STEP 1: Good Agro-Practices, STEP 2: Choose the Best Fertilizer, STEP 3: Fertilizer Application Rate, STEP 4: Calculate Cost and Benefits, STEP 5: Fertilizer Application Time, and STEP 6: Fertilizer Application Method.

STEP 1: Apply Good Agronomic Practices

Fertilizer use is only recommended if some minimal good agronomic practices are upheld:

- Always use improved varieties that are disease-tolerant, for example TME 419, TMS 30572 or TMS 98-0581.
- We advise obtaining disease-free cuttings from a certified source.
- Plant in lines of 1 m between rows and 80 cm within row (5,000 plants per acre).
- Practice good land preparation and weed control. See our recommendations on "Six Steps to Cassava Weed Management and Planting Practices".

STEP 2: Choose the Best Fertilizer

Cassava requires different nutrients to grow. The 3 most important nutrients are:

- Nitrogen** is required for the growth of stems and leaves.
- Phosphorus** provides the crop with the energy needed for growth.
- Potassium** is required for the bulking of the storage roots.

Some fertilizers supply all 3 of these nutrients (e.g. NPK 15:15:15, NPK 17:17:17 or NPK 20:10:10) while other fertilizers only supply 1 or 2 of these nutrients (e.g. urea 46:0:0, DAP 18:46:0 and MOP 0:0:60).

Cassava requires all 3 of these nutrients, but the amounts depend on the fertility of the soil and the planting date. For this reason, a combination of fertilizers is preferred over a single complex fertilizer. In this tool, we will focus on the use of commonly available fertilizers: Urea and NPK 15:15:15.

STEP 3: Decide the Fertilizer Application Rate

The amount of fertilizer to apply depends on your current cassava yield. Think of how cassava performed in your field in the past, and compare the size of the root stock to the pictures.

LOW NORMAL MEDIUM HIGH VERY HIGH

4.75 tonnes per hectare 7.5 - 15 tonnes per hectare 15 - 22.5 tonnes per hectare 22.5 - 30 tonnes per hectare >30 tonnes per hectare

The higher your current yield, the less fertilizer is required. Use the flyer with maps and tables to obtain the fertilizer rate for your LGA, month of planting and current yield level. Recommendations are provided in kilograms of urea and NPK fertilizer per acre. Convert these to rates required for your field using the calculations below.

Area of your field (m^2) \times Fertilizer needed for 1 ha (kg) = Fertilizer needed for your field (kg)

10,000 (m^2) = Fertilizer needed for your field (kg)

A small image of a basket filled with fertilizer is shown at the bottom right.

You will use

AKILIMO guide

The screenshot shows the AKILIMO Tailored Fertilizer Application Recommendations for Cassava. At the top, there's a cassava leaf icon and the text "Tailored Fertilizer Application Recommendations for Cassava". Below that are logos for ACAI and AKILIMO. A sidebar on the right lists "STEP 1: Good Agro-Practices" through "STEP 6: Fertilizer Application Method".

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LOW: <7.5 tonnes per hectare
NORMAL: 7.5 - 15 tonnes per hectare
MEDIUM: 15 - 22.5 tonnes per hectare
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1 bag (of 50 kg) per hectare is about 1 full crown cap per plant

Farmer's worksheet



Tailored fertilizer recommendations

Farmer's worksheet

1 Apply good agronomic practices

- Select a suitable field
Plant a disease-tolerant variety
Obtain disease-free cuttings
Practice good land preparation
Practice good weed control

A _____ ha
Your field area

2 Choose the right fertilizer types

Contact your agrodealer. You will need two fertilizers:



B _____ ₦
Price of a 50 kg bag



C _____ ₦
Price of a 50 kg bag

3 Obtain the recommended fertilizer rate

Consult the AKILIMO tool to obtain the recommended rate and expected yield response in your local government area, for your planting month and yield class. Provide your cassava sale price.

D _____ kg / ha
Recommended urea rate

E _____ kg / ha
Recommended NPK 15:15:15 rate

F _____ tonnes / ha
Expected yield response

G _____ ₦ / tonne
Expected sale price of cassava roots

You will use

Flyer with fertilizer rates



Recommended Fertilizer Rates

BENUE CROSSRIVER
(or your state)

This tool contains tables and maps with advice on application rates of urea, NPK 15-15-15 fertilizer for cassava. Response to fertilizer depends on soil conditions, the time of planting and your yield class. Tables are provided that specify the recommended fertilizer application rates by LGA, month of planting, and your yield class, as well as the expected root yield response. Maps are also provided to show how fertilizer rates vary across the state.

AKILIMO guide

Tailored Fertilizer Application Recommendations for Cassava

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Yield Class	Approximate Yield (tonnes per hectare)
LOW	<7.5 tonnes per hectare
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Farmer's worksheet



Tailored fertilizer recommendations

Farmer's worksheet

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Select a suitable field
Plant a disease-tolerant variety
Obtain disease-free cuttings
Practice good land preparation
Practice good weed control

A _____ ha
Your field area

2 Choose the right fertilizer types

Contact your agrodealer. You will need two fertilizers:

B urea _____ ₦
Price of a 50 kg bag

C NPK 15:15:15 _____ ₦
Price of a 50 kg bag

3 Obtain the recommended fertilizer rate

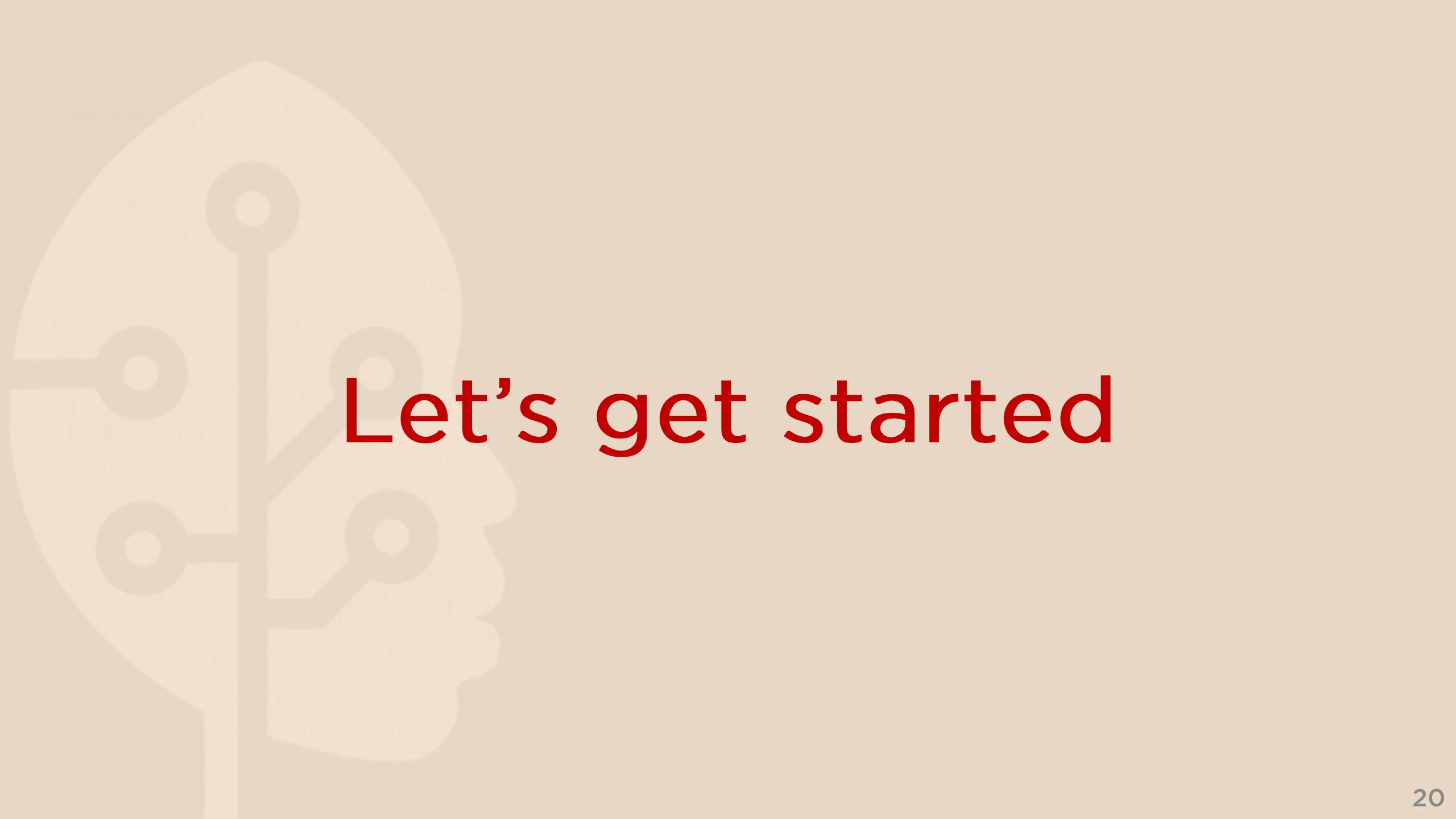
Consult the AKILIMO tool to obtain the recommended rate and expected yield response in your local government area, for your planting month and yield class. Provide your cassava sale price.

D kg / ha
Recommended urea rate

E kg / ha
Recommended NPK 15:15:15 rate

F tonnes / ha
Expected yield response

G ₦ / tonne
Expected sale price of cassava roots



Let's get started

1 Apply good agronomic practices

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Fertilizer use is only recommended if some minimal good agronomic practices are upheld!

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- Always use improved varieties that are disease-tolerant.

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Fertilizer use is only recommended if some minimal good agronomic practices are upheld!

- Practice good land preparation and weed control.
See our video on “Six Steps to Cassava Weed Management and Planting practices”.
- Always use improved varieties that are disease-tolerant.
- We advise obtaining disease-free cuttings from a certified source.
- Plant in lines of 1 m between rows.
Space erect varieties at 80 cm within row (12,500 plants per hectare).
Space branching varieties at 1 m within row (10,000 plants per hectare).

1 Apply good agronomic practices

Fertilizer use is only recommended if some minimal good agronomic practices are upheld!

1

Apply good agronomic practices

- Select a suitable field
- Plant a disease-tolerant variety
- Obtain disease-free cuttings
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A
_____ ha
Your field area

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- Practice good weed control

0.2

A

Your field area

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Phosphorus provides the crop with energy needed for growth.

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P

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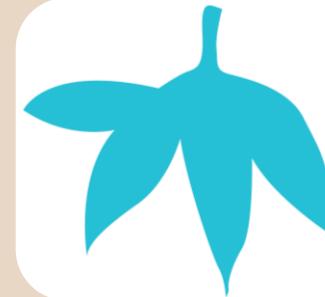
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Potassium is used for the bulking of the storage roots.

N

P

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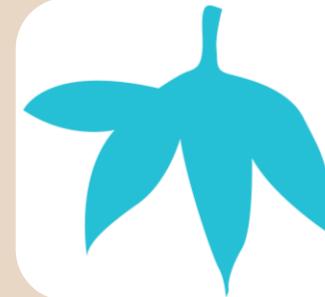
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K

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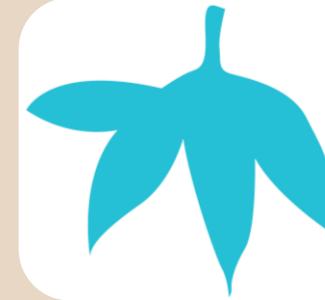
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Some fertilizers supply all 3 of these nutrients:

NPK 15:15:15, NPK 17:17:17, NPK 20:10:10

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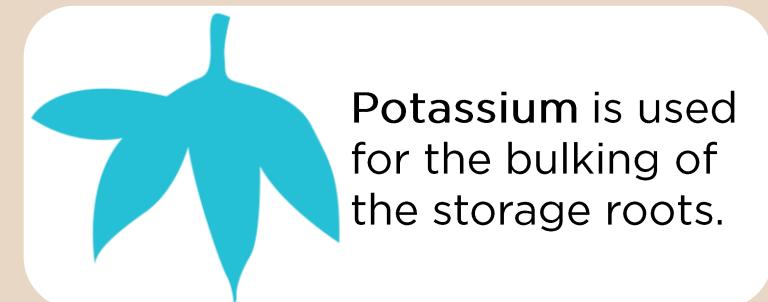
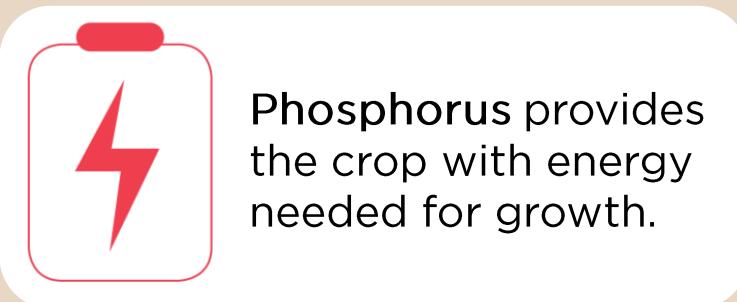
NPK 15:15:15, NPK 17:17:17, NPK 20:10:10

Other fertilizers only supply 1 or 2 of these nutrients:

urea 46:0:0, DAP 18:46:0, MOP 0:0:60

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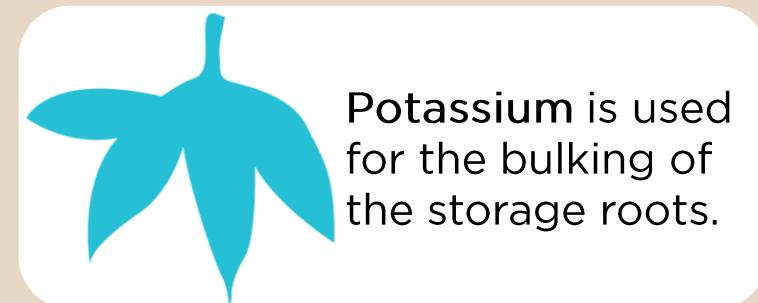
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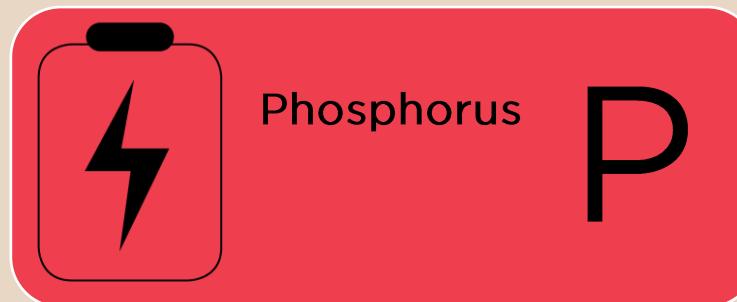
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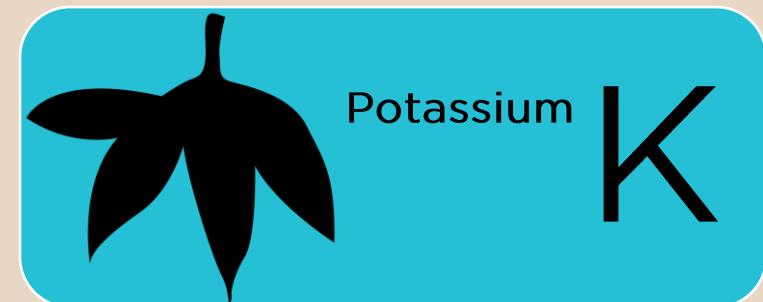
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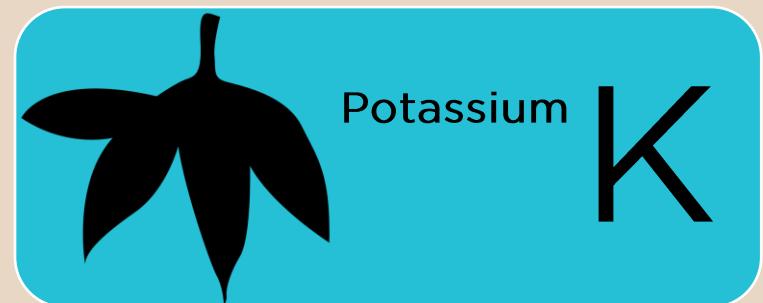
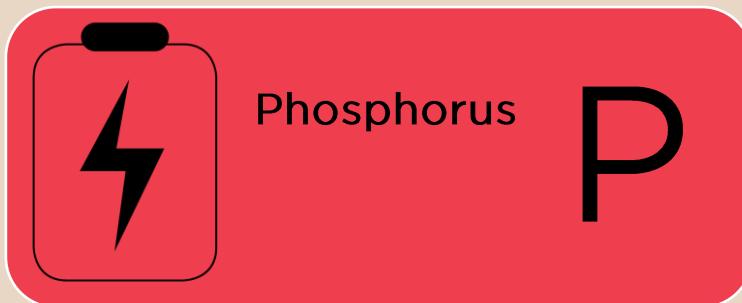
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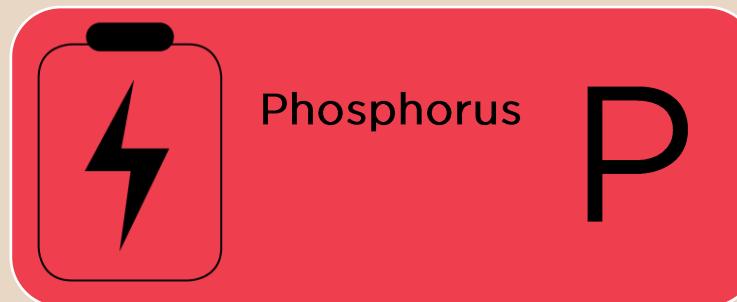
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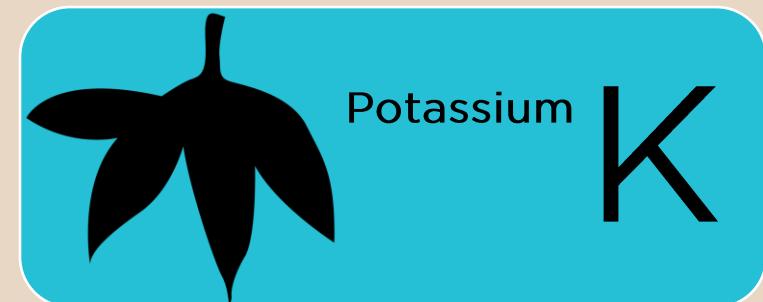
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In this video, we will focus on a combination of 2 commonly available fertilizers:

urea 46:0:0 + NPK 15:15:15

2 Choose the right fertilizer types

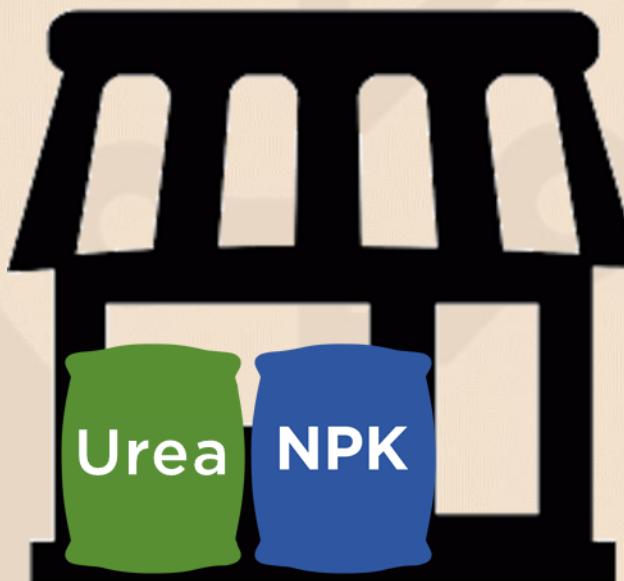
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2 Choose the right fertilizer types

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urea 46:0:0 + NPK 15:15:15



Ask your local agrodealer for the prices of urea and NPK 15:15:15.

2 Choose the right fertilizer types

In this video, we will focus on a combination of 2 commonly available fertilizers:

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The worksheet collects price information for these two fertilizers:

2 Choose the right fertilizer types

Contact your agrodealer. You will need two fertilizers:



B
_____ #
Price of a 50 kg bag



C
_____ #
Price of a 50 kg bag

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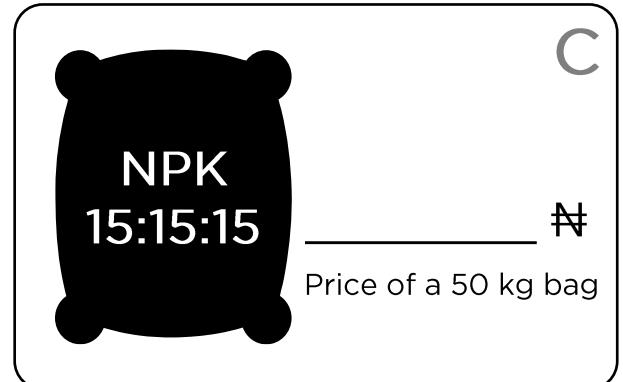
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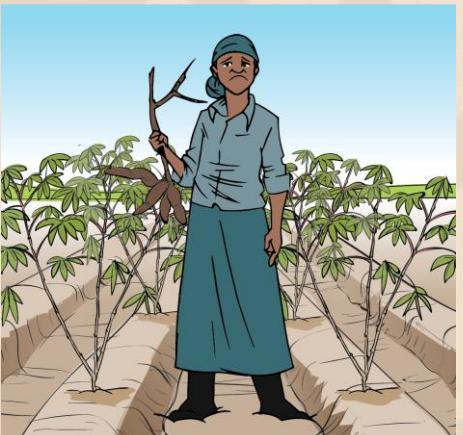
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Think of how cassava performed in your field in the past, and compare the size of a typical root stock harvested from your field to the rootstocks shown in these pictures.

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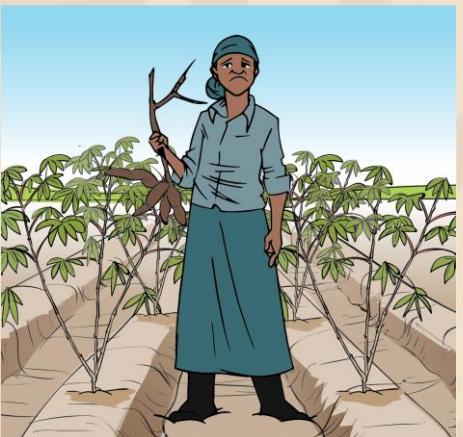
LOW

<7.5 tonnes per hectare

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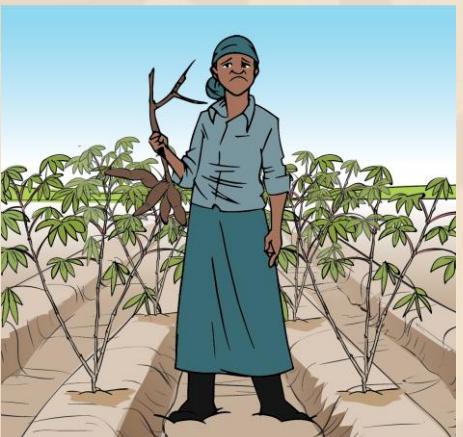
NORMAL

7.5 - 15 tonnes per hectare

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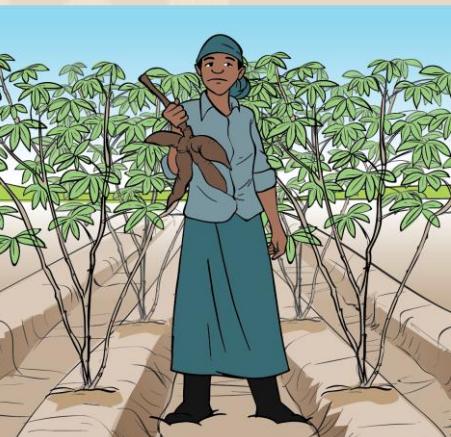
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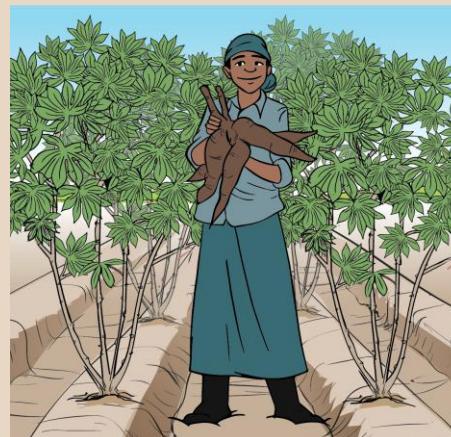
LOW

<7.5 tonnes per hectare



NORMAL

7.5 - 15 tonnes per hectare



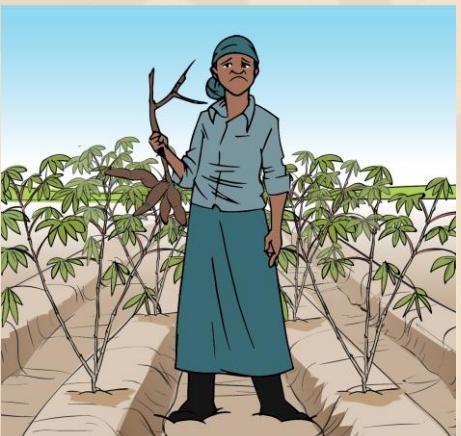
MEDIUM

15 - 22.5 tonnes per hectare

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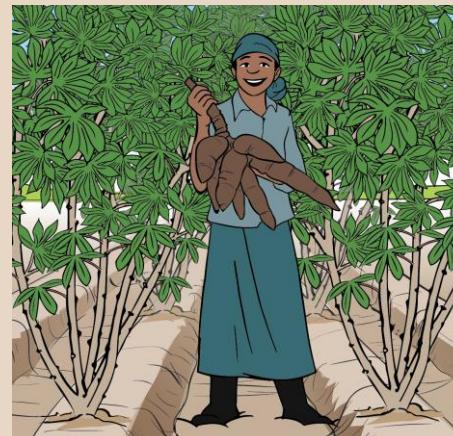
LOW



NORMAL



MEDIUM



HIGH

<7.5 tonnes per hectare

7.5 - 15 tonnes per hectare

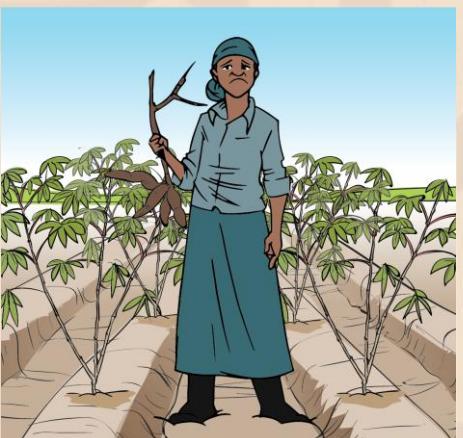
15 - 22.5 tonnes per hectare

22.5 - 30 tonnes per hectare

3 Obtain the recommended fertilizer rate

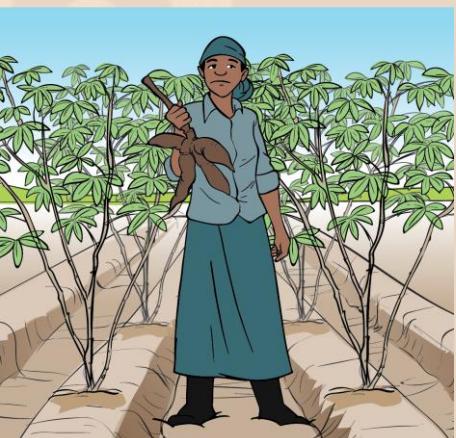
The amount of fertilizer to apply depends on your current cassava yield.

Think of how cassava performed in your field in the past, and compare the size of a typical root stock harvested from your field to the rootstocks shown in these pictures.



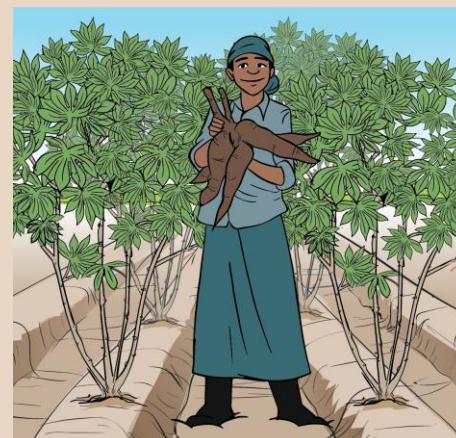
LOW

<7.5 tonnes per hectare



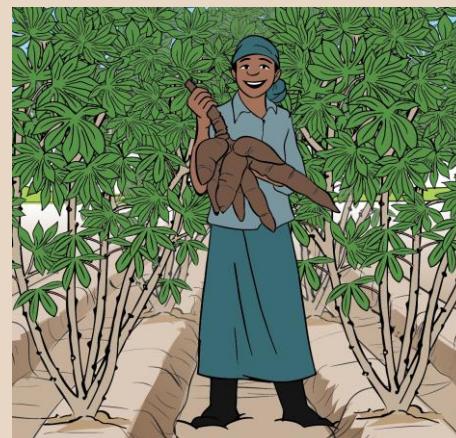
NORMAL

7.5 - 15 tonnes per hectare



MEDIUM

15 - 22.5 tonnes per hectare



HIGH

22.5 - 30 tonnes per hectare



VERY HIGH

>30 tonnes per hectare

3 Obtain the recommended fertilizer rate

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NORMAL

7.5 - 15 tonnes per hectare

For example

A good crop stand is 10,000 plants per hectare.
If every plant yields 1 kg of roots, then your
yield will be:

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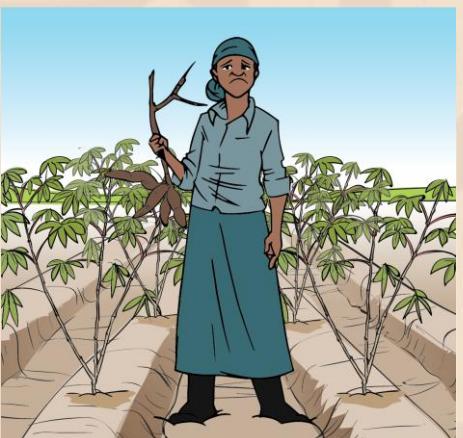
$$10,000 \times 1\text{kg} = 10 + / \text{ha}$$

This is a typical yield for smallholder cassava growers.

3 Obtain the recommended fertilizer rate

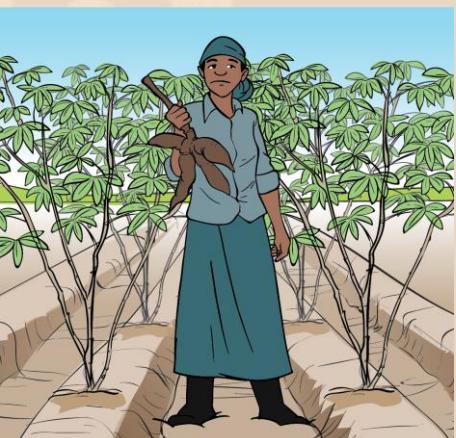
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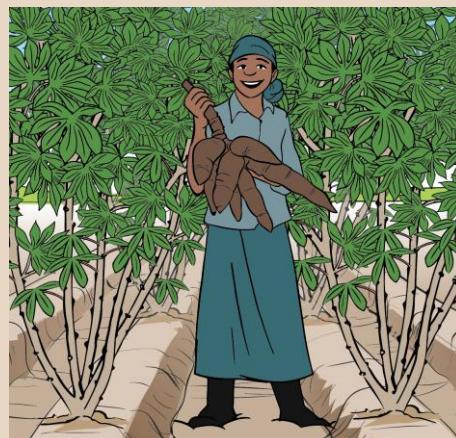
NORMAL

7.5 - 15 tonnes per hectare



MEDIUM

15 - 22.5 tonnes per hectare



HIGH

22.5 - 30 tonnes per hectare



VERY HIGH

>30 tonnes per hectare

The higher your yield, the more productive your soil, and the smaller the fertilizer requirement.

3 Obtain the recommended fertilizer rate

AKILIMO also considers where you are located, and your planting date.

3 Obtain the recommended fertilizer rate

AKILIMO also considers where you are located, and your planting date.

Local government area



AKILIMO uses information about the typical soils in your area to calculate how much nutrients your soil can typically supply.

Different soils require different amounts of fertilizer nutrients.

3 Obtain the recommended fertilizer rate

AKILIMO also considers where you are located, and your planting date.

Local government area

AKILIMO uses information about the typical soils in your area to calculate how much nutrients your soil can typically supply.



Different soils require different amounts of fertilizer nutrients.

Planting month

AKILIMO uses the typical rainfall your crop will receive to calculate how much it can benefit from fertilizer application.



Your planting date affects when and how much rainfall your crop receives.

3 Obtain the recommended fertilizer rate

Use the AKILIMO flyer to look up the recommended fertilizer rate for your current yield level, your local government area, and your planting month.

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Recommended
Fertilizer Rates

www.akilimo.org

BENUE CROSSRIVER
(or your state)

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The recommended fertilizer rate depends on:

Yield class



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Recommended
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The recommended fertilizer rate depends on:

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LOW
NORMAL
MEDIUM
HIGH
VERY HIGH

LGA



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The recommended fertilizer rate depends on:

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LOW
NORMAL
MEDIUM
HIGH
VERY HIGH

LGA



Planting month



3 Obtain the recommended fertilizer rate

How does this work? Let's look at an example.

3 Obtain the recommended fertilizer rate

How does this work? Let's look at an example.

What is your State?

3 Obtain the recommended fertilizer rate

How does this work? Let's look at an example.

What is your State?

Benue

3 Obtain the recommended fertilizer rate

How does this work? Let's look at an example.

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What is your Local Government Area?

3 Obtain the recommended fertilizer rate

How does this work? Let's look at an example.

What is your State?

Benue

What is your Local Government Area?

Gboko

3 Obtain the recommended fertilizer rate

How does this work? Let's look at an example.

What is your State?

Benue

What is your Local Government Area?

Gboko

In what month will you plant your cassava?

3 Obtain the recommended fertilizer rate

How does this work? Let's look at an example.

What is your State?

Benue

What is your Local Government Area?

Gboko

In what month will you plant your cassava?

May

3 Obtain the recommended fertilizer rate

How does this work? Let's look at an example.

What is your State?

Benue

What is your Local Government Area?

Gboko

In what month will you plant your cassava?

May

What yield do you typically obtain?

(without fertilizer)

3 Obtain the recommended fertilizer rate

How does this work? Let's look at an example.

What is your State?

Benue

What is your Local Government Area?

Gboko

In what month will you plant your cassava?

May

What yield do you typically obtain?

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3 Obtain the recommended fertilizer rate

How does this work? Let's look at an example.

What is your State?

Benue

What is your Local Government Area?

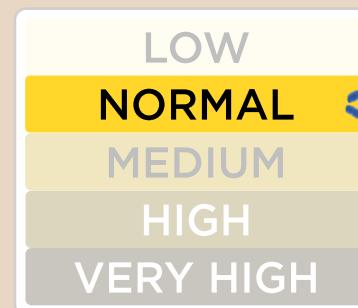
Gboko

In what month will you plant your cassava?

May

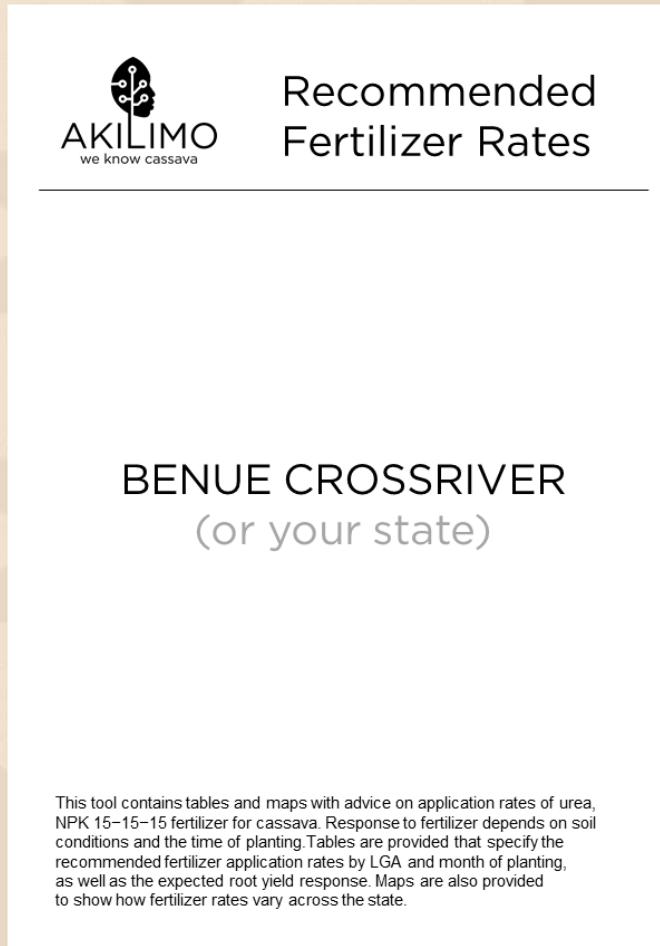
What yield do you typically obtain?

(without fertilizer)



3 Obtain the recommended fertilizer rate

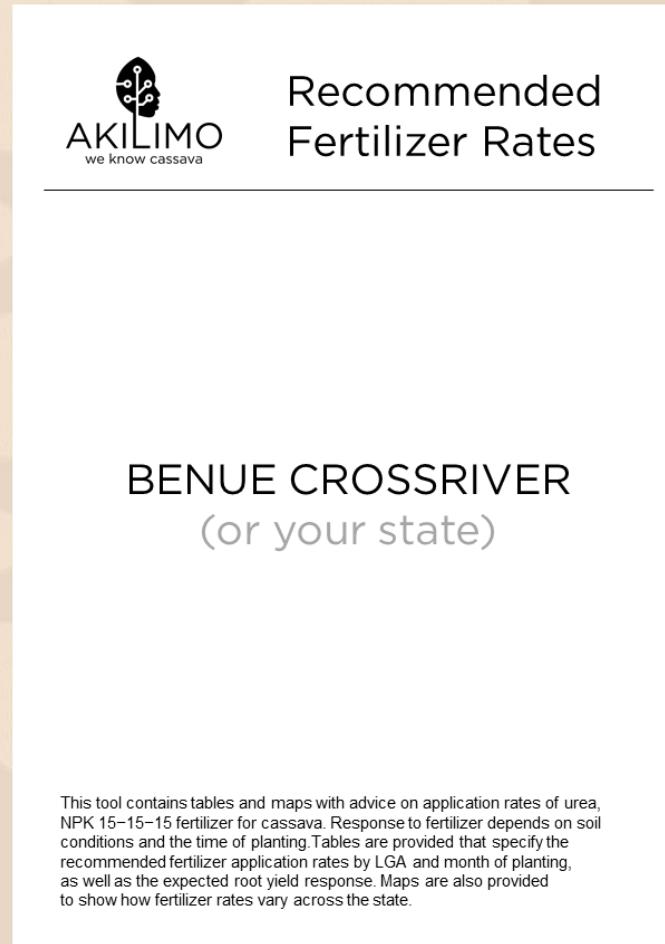
Let's look at the flyer...



AKILIMO provides a flyer that contains the recommended fertilizer rates for your state.

3 Obtain the recommended fertilizer rate

Let's look at the flyer...

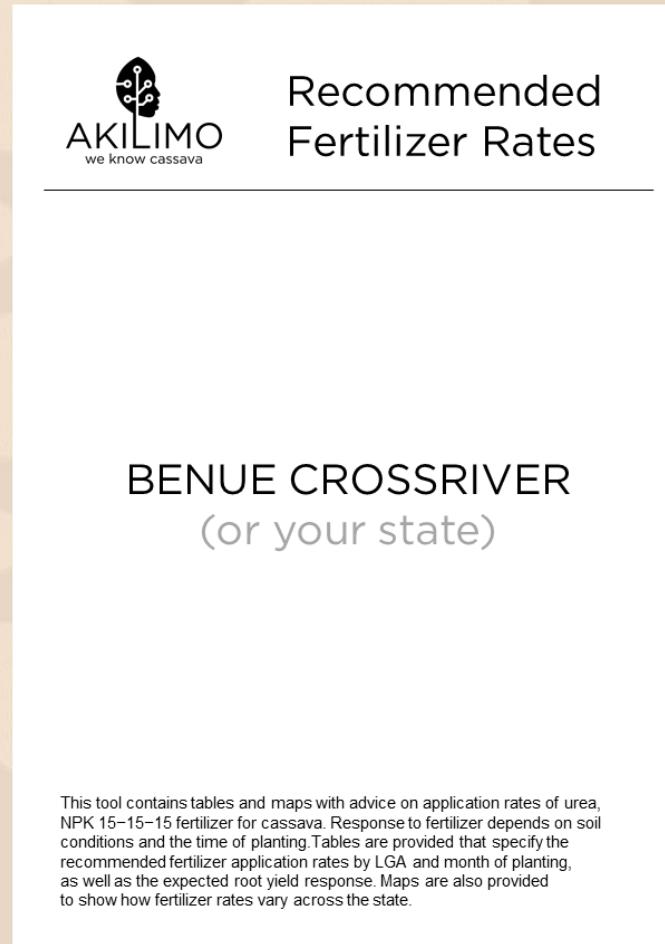


AKILIMO provides a flyer that contains the recommended fertilizer rates for your state.

The flyer contains maps and tables that specify the recommended urea and NPK 15:15:15 rates per LGA, planting month and yield class.

3 Obtain the recommended fertilizer rate

Let's look at the flyer...



AKILIMO provides a flyer that contains the recommended fertilizer rates for your state.

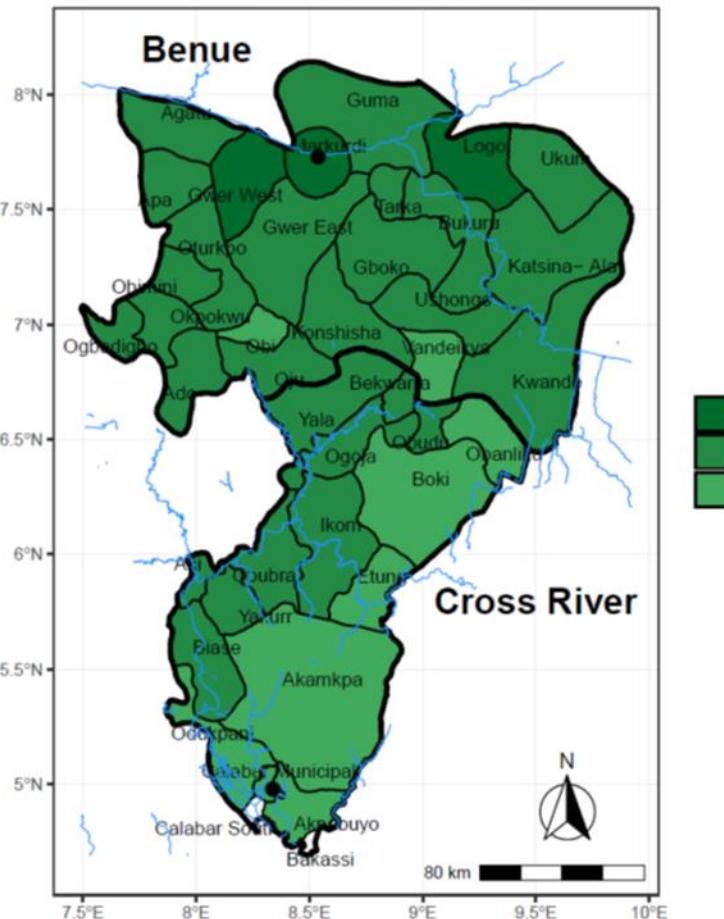
The flyer contains maps and tables that specify the recommended urea and NPK 15:15:15 rates per LGA, planting month and yield class.

So for our example, we look for recommendations for Gboko, Benue, when planting in May, in a field with typically normal yield.

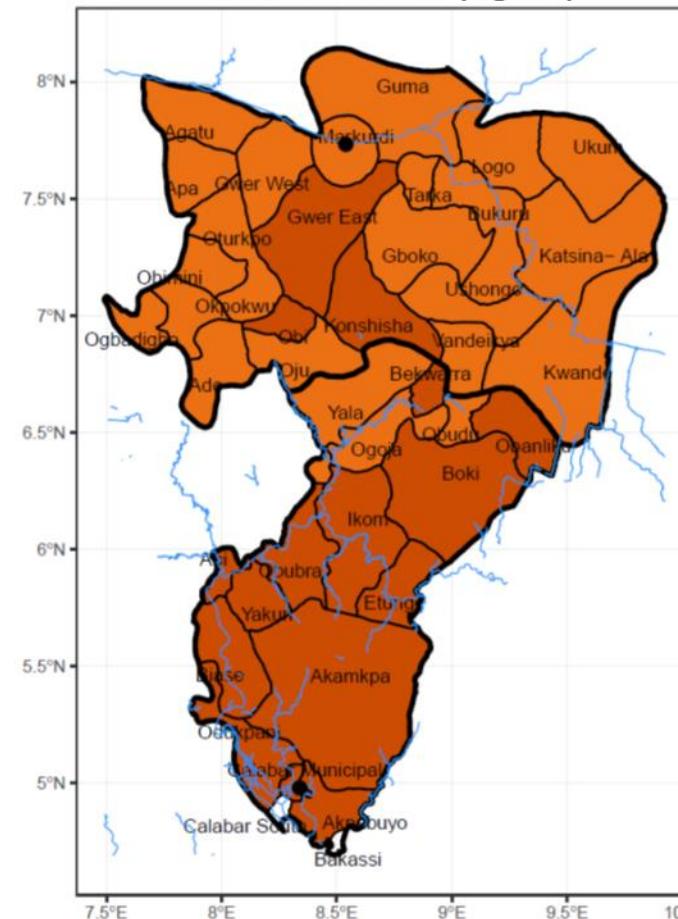
3 Obtain the recommended fertilizer rate

Benue state ; planting in May ; yield class = **NORMAL**

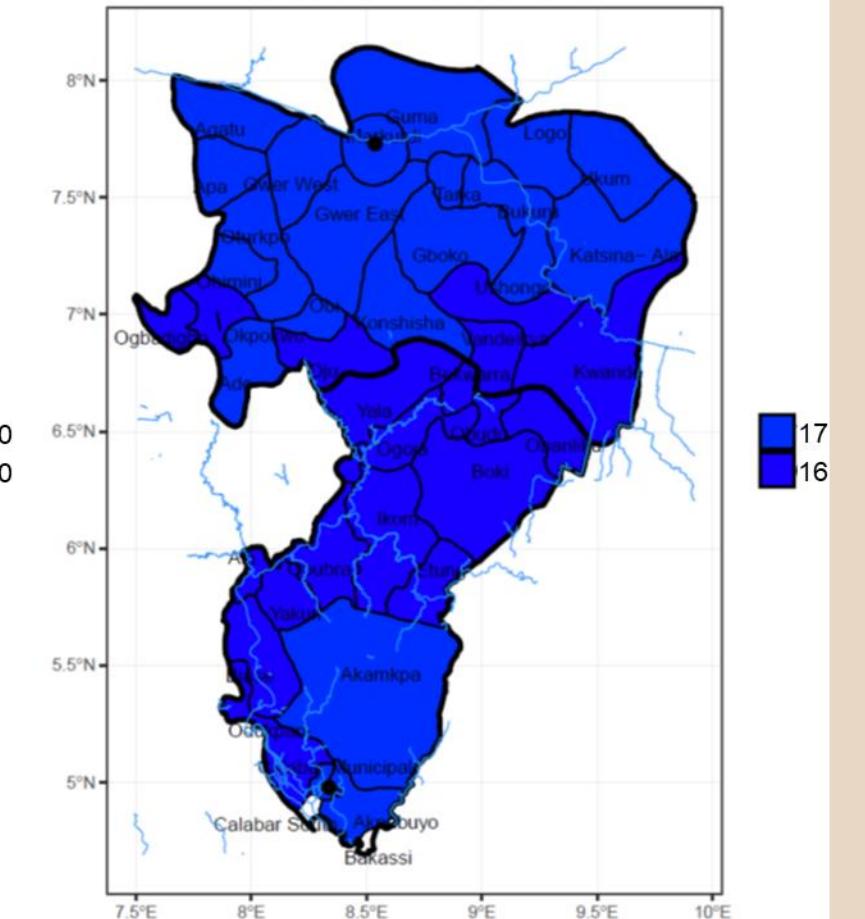
Urea (kg/ha)



NPK 15-15-15 (kg/ha)



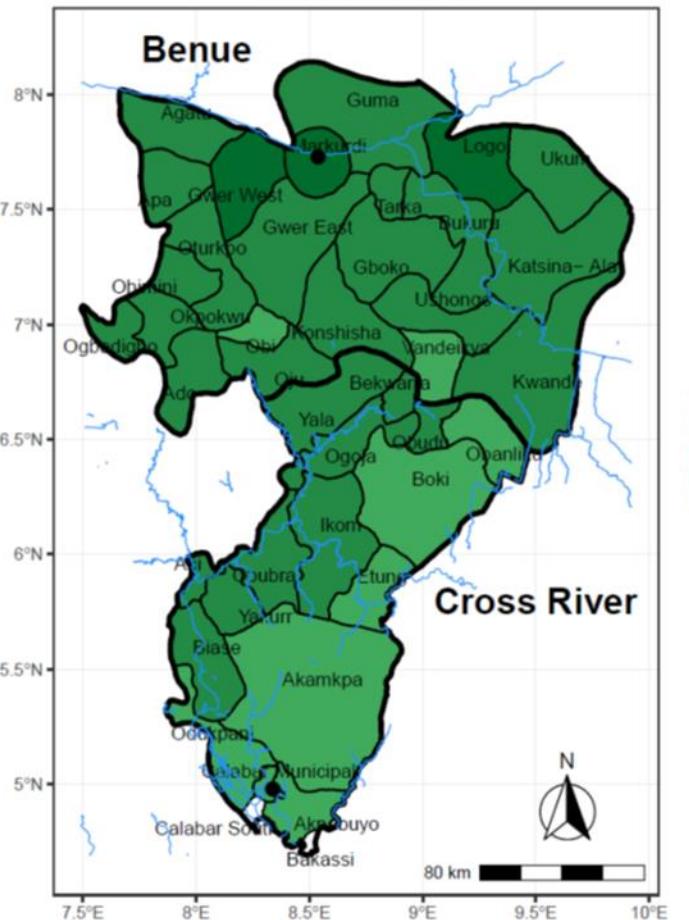
Yield increase (t/ha)



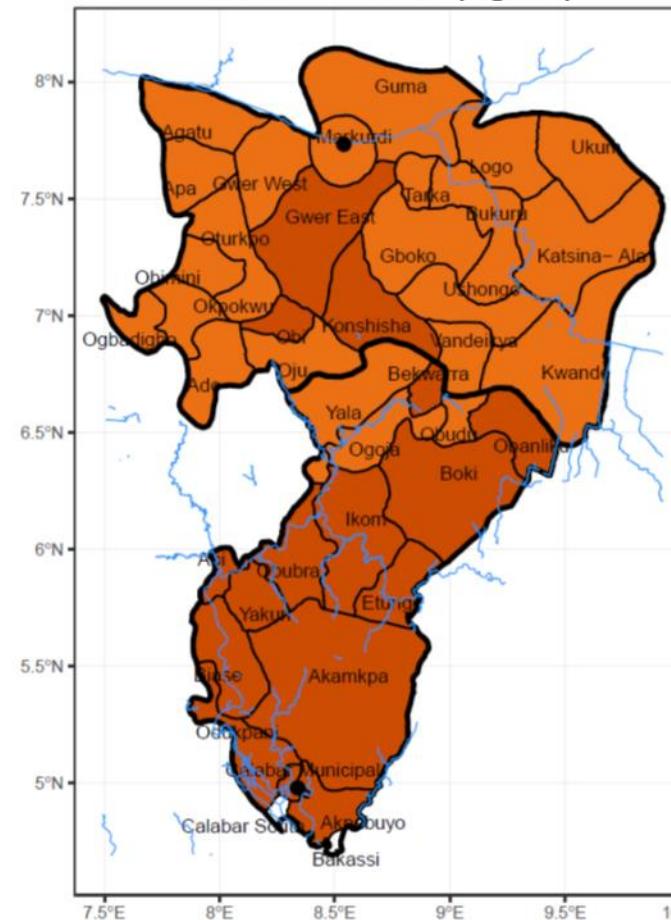
3 Obtain the recommended fertilizer rate

Benue state ; planting in May ; yield class = **NORMAL**

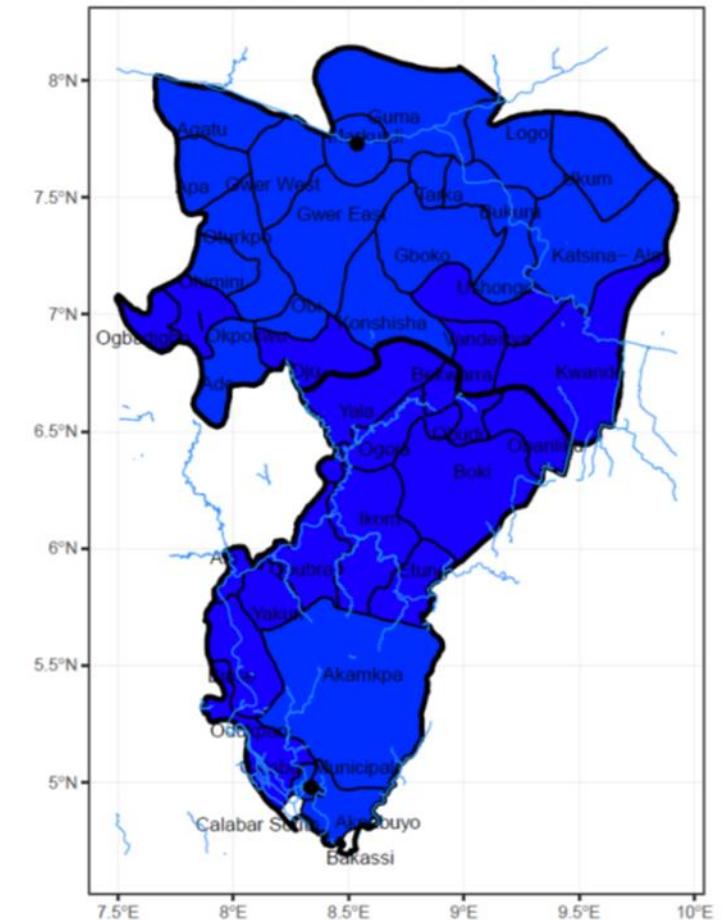
Urea (kg/ha)



NPK 15-15-15 (kg/ha)



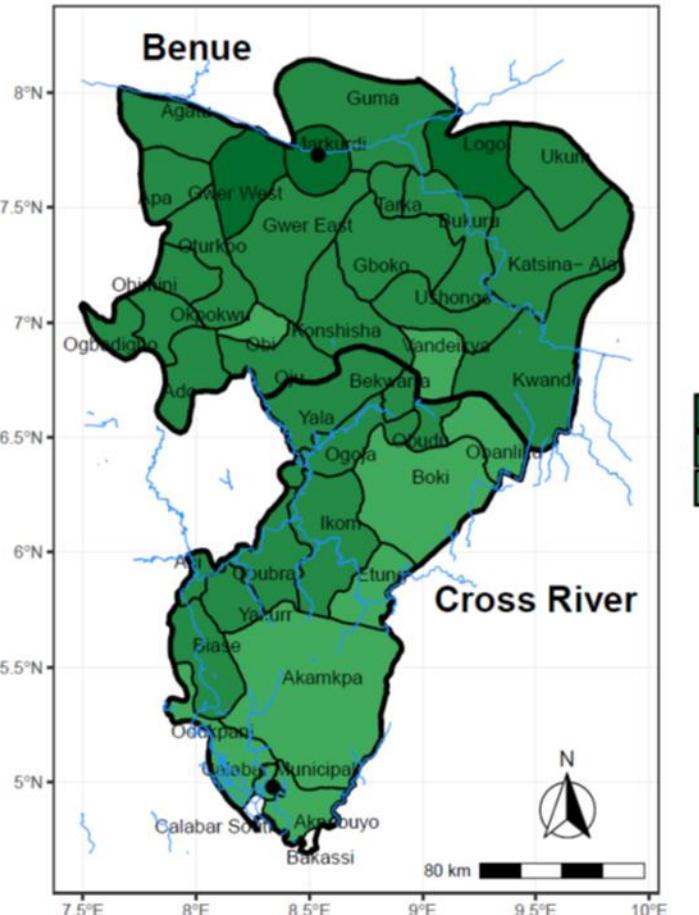
Yield increase (t/ha)



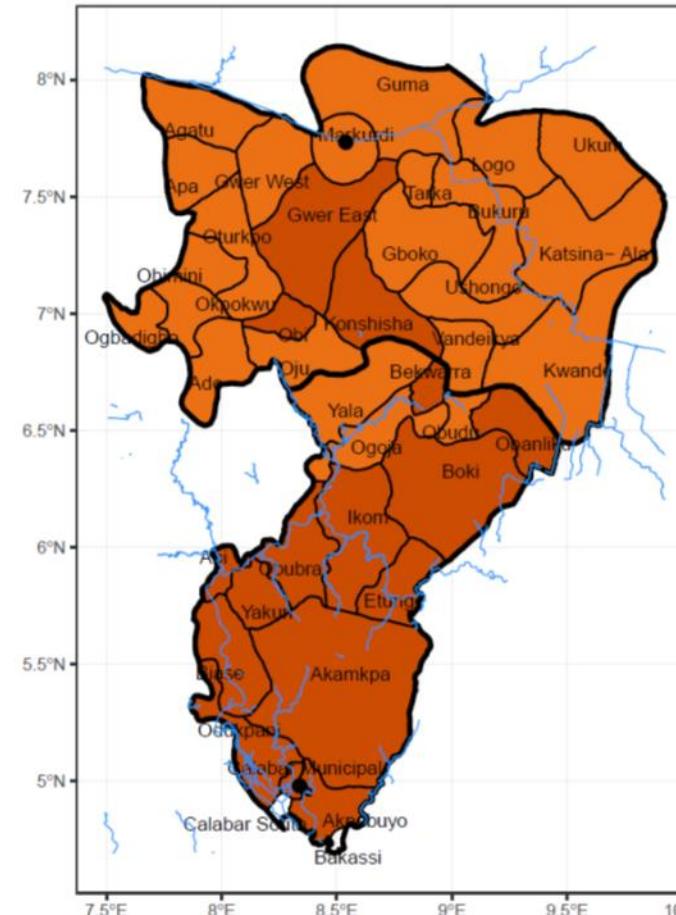
3 Obtain the recommended fertilizer rate

Benue state ; planting in May ; yield class = **NORMAL**

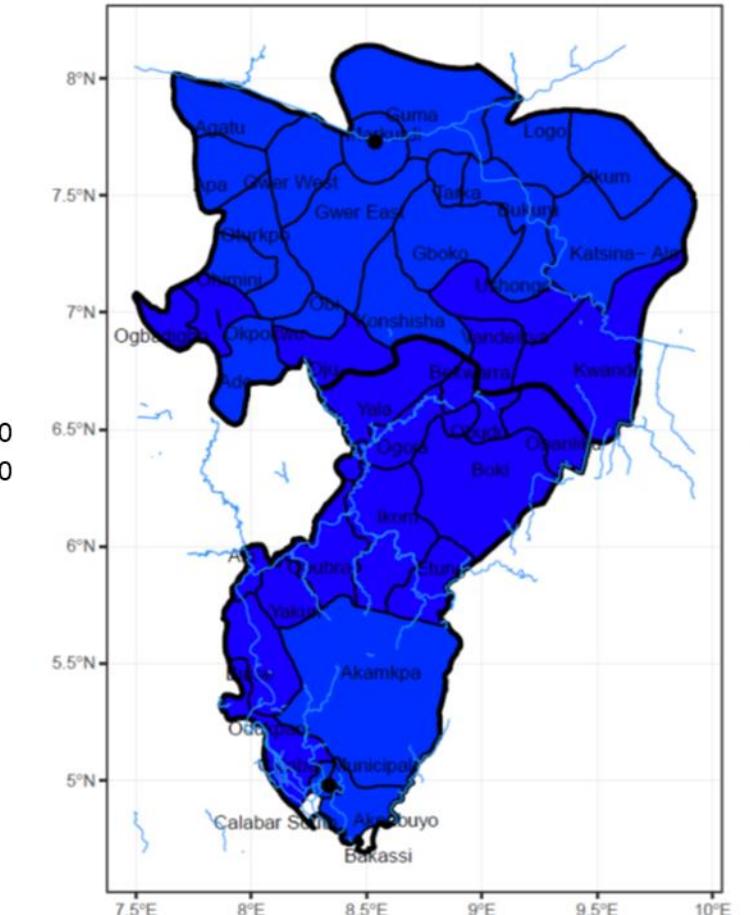
Urea (kg/ha)



NPK 15-15-15 (kg/ha)



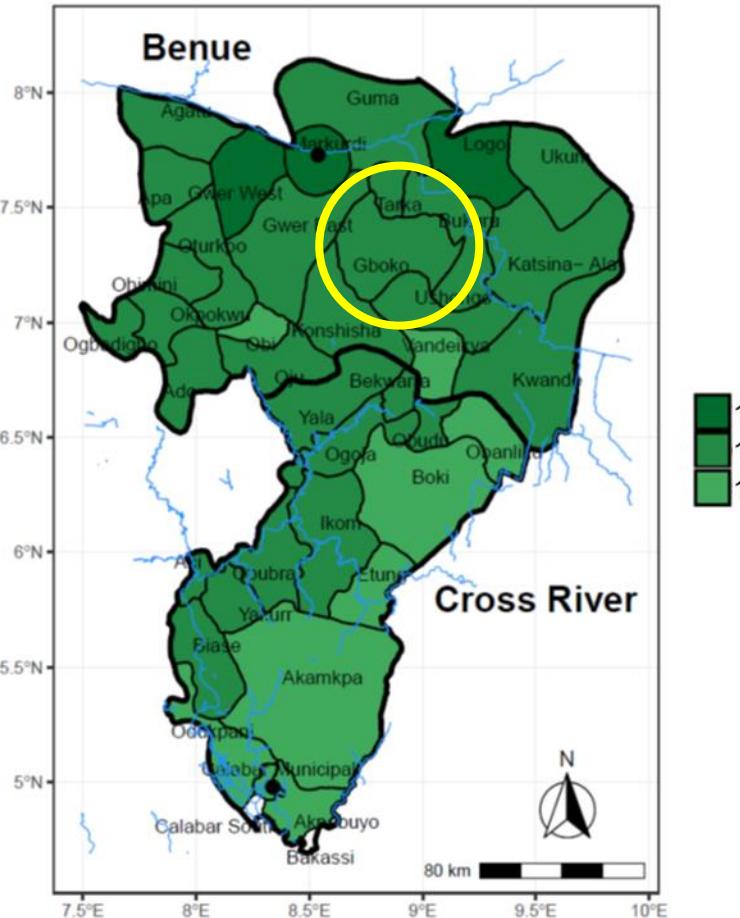
Yield increase (t/ha)



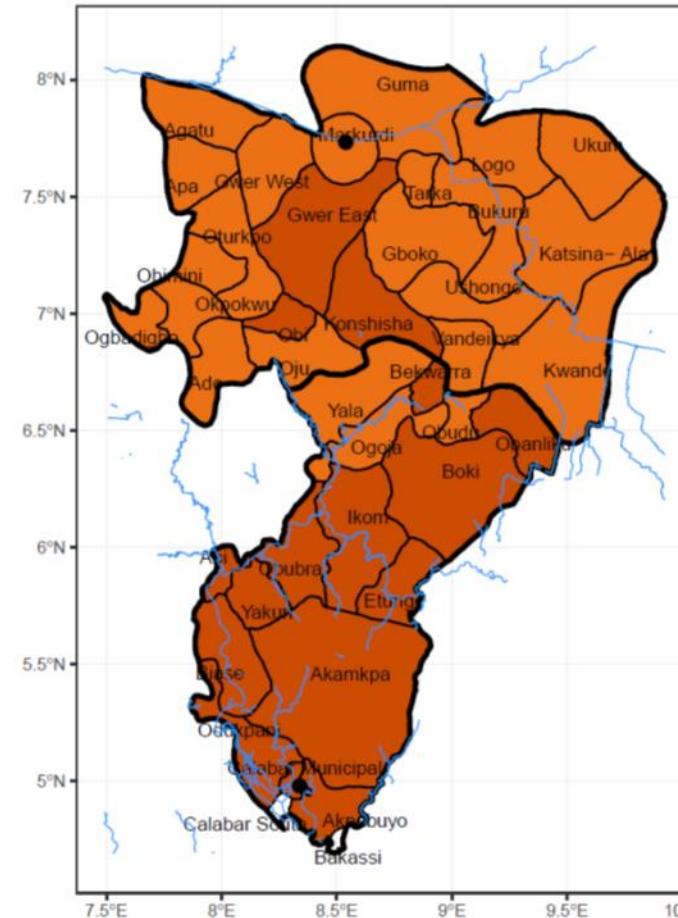
3 Obtain the recommended fertilizer rate

Benue state ; planting in May ; yield class = **NORMAL**

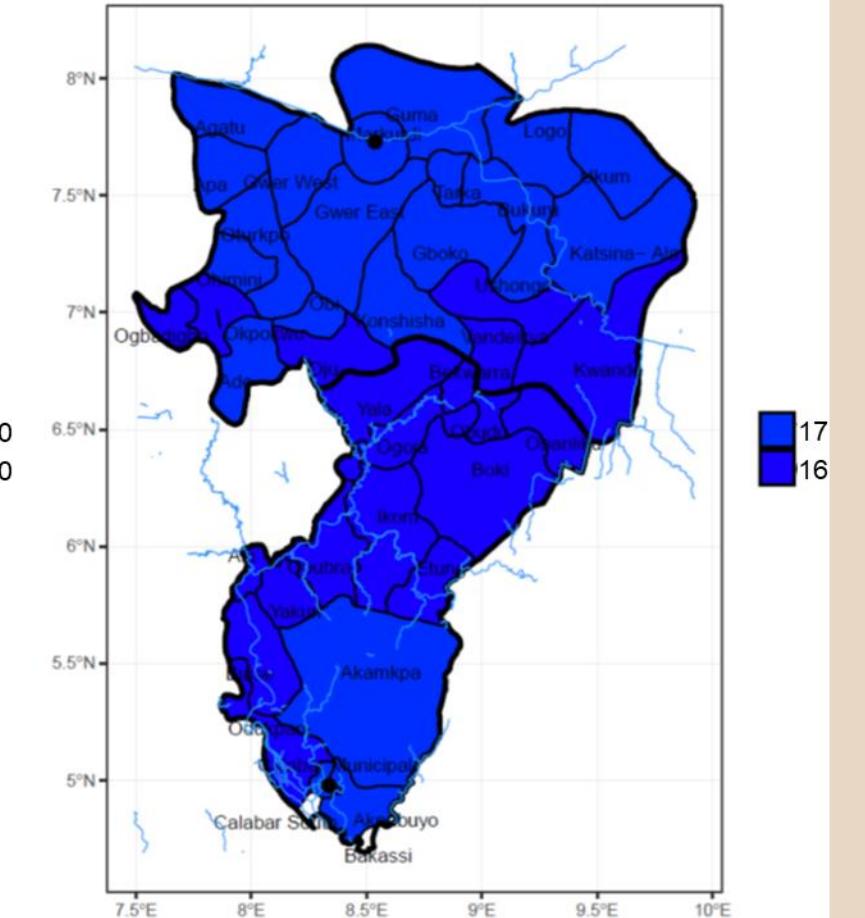
Urea (kg/ha)



NPK 15-15-15 (kg/ha)



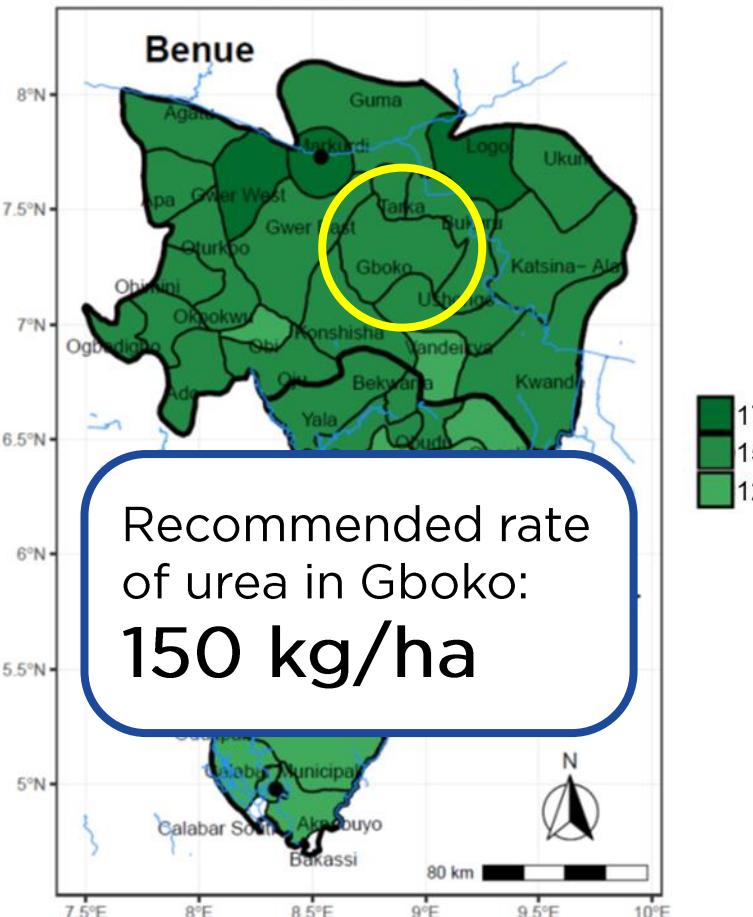
Yield increase (t/ha)



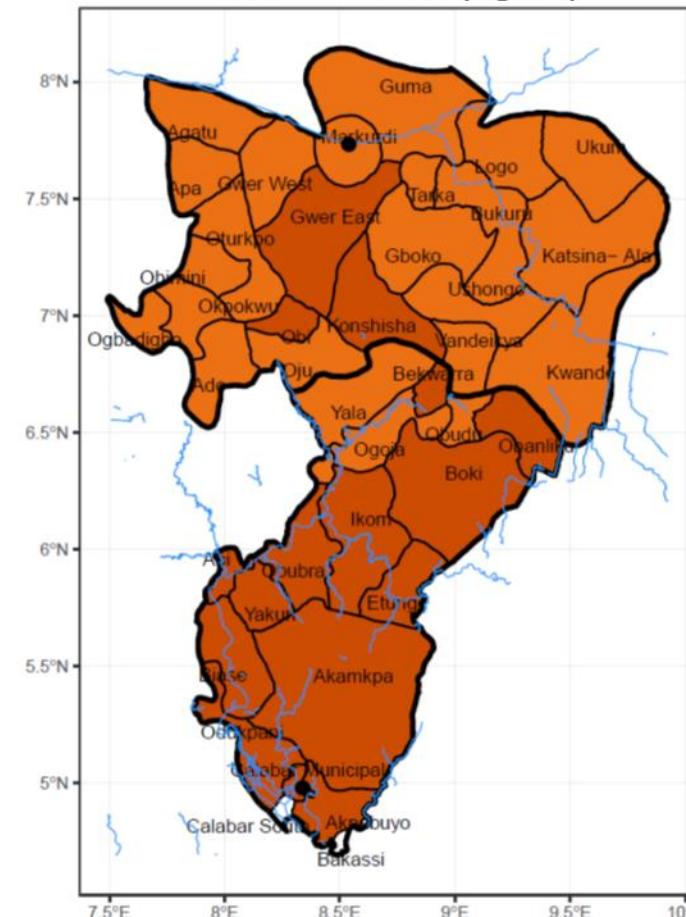
3 Obtain the recommended fertilizer rate

Benue state ; planting in May ; yield class = **NORMAL**

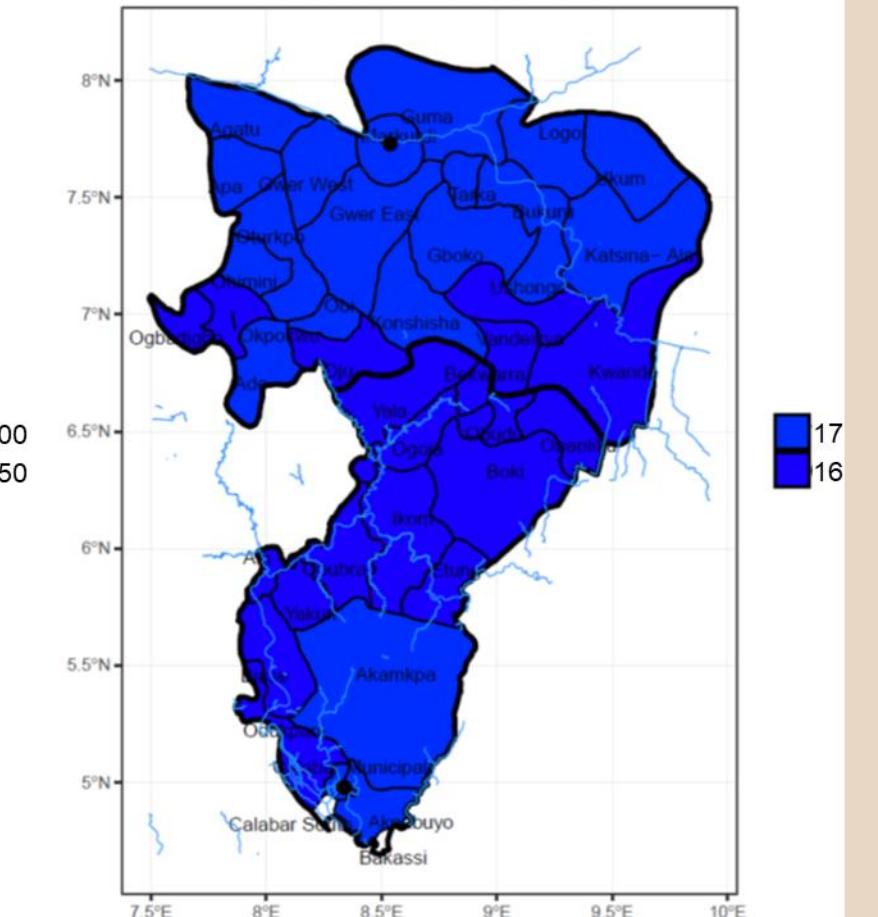
Urea (kg/ha)



NPK 15-15-15 (kg/ha)



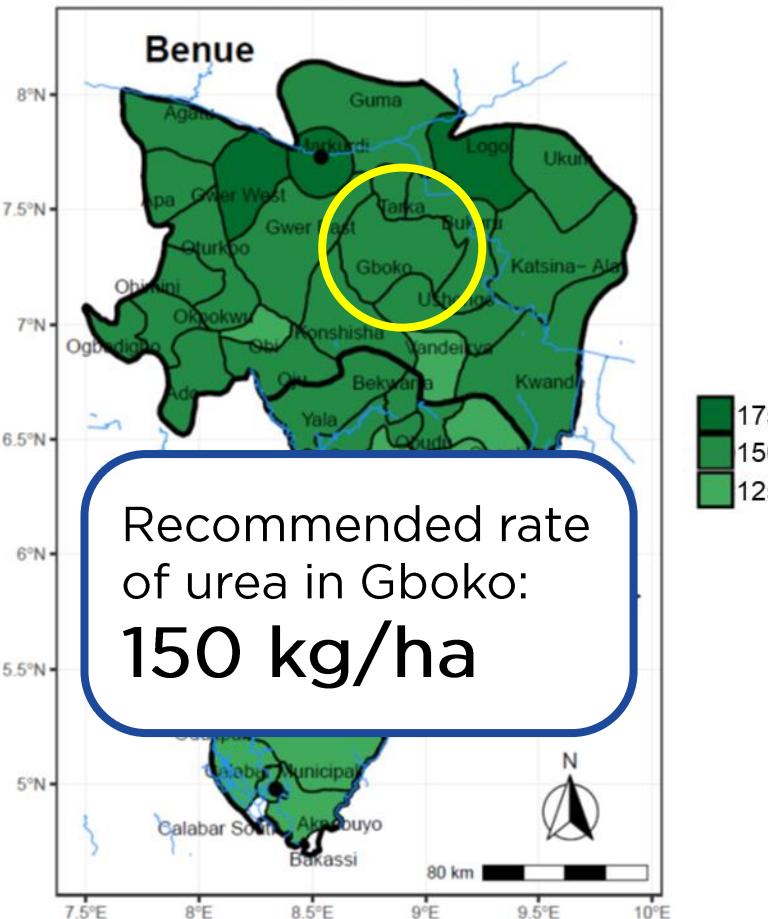
Yield increase (t/ha)



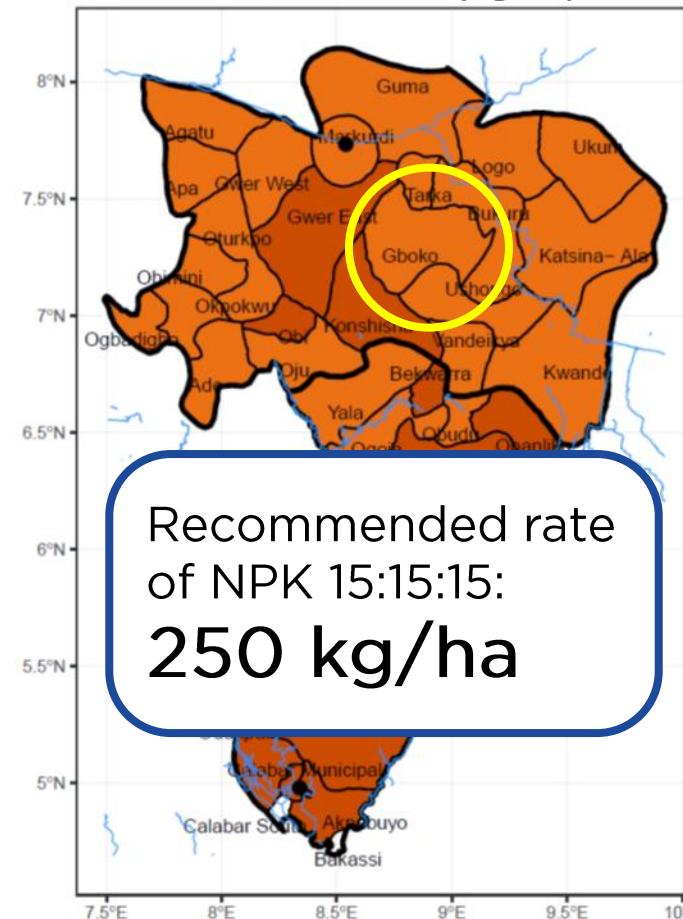
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Benue state ; planting in May ; yield class = **NORMAL**

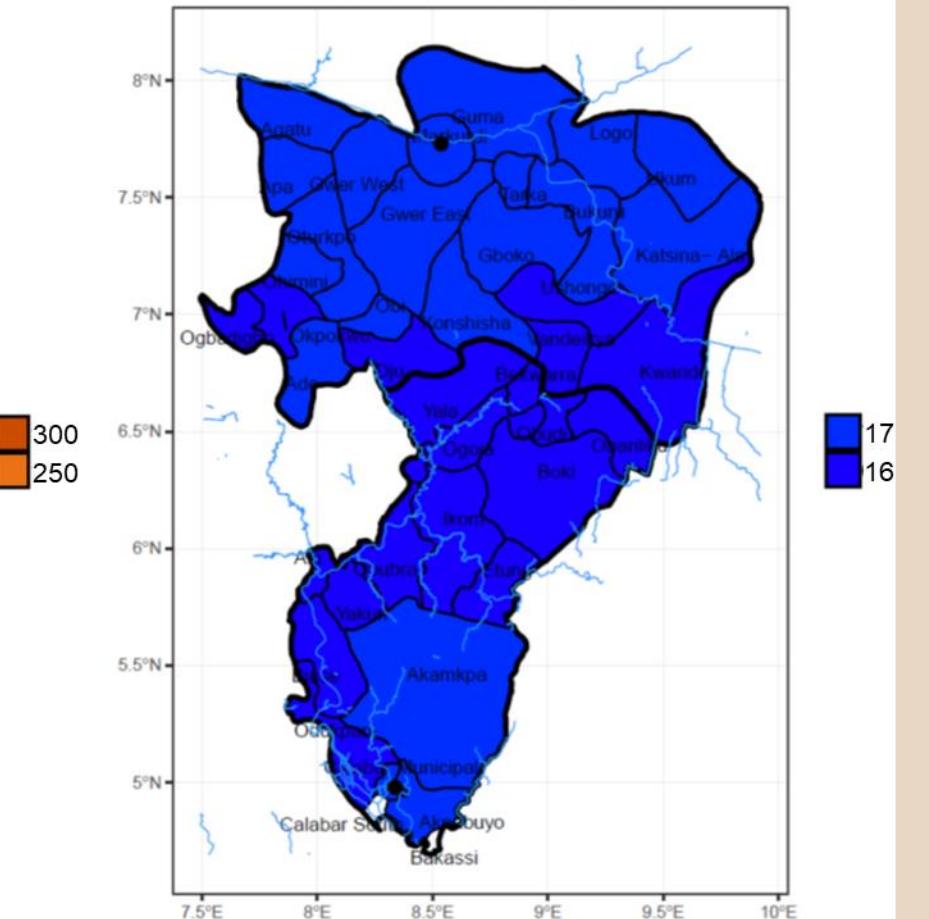
Urea (kg/ha)



NPK 15-15-15 (kg/ha)



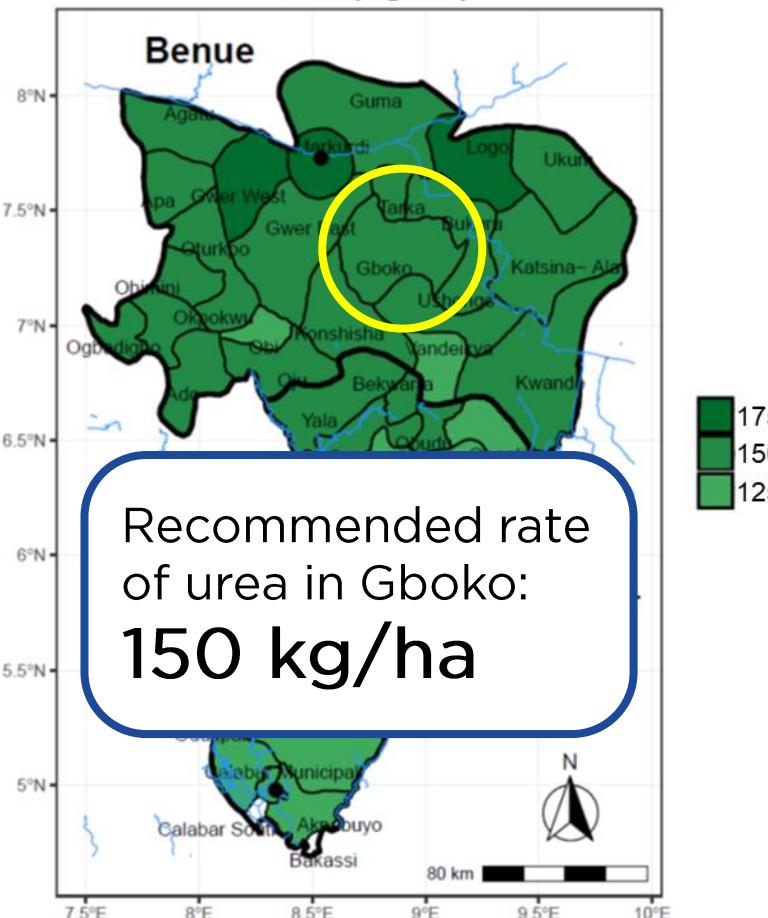
Yield increase (t/ha)



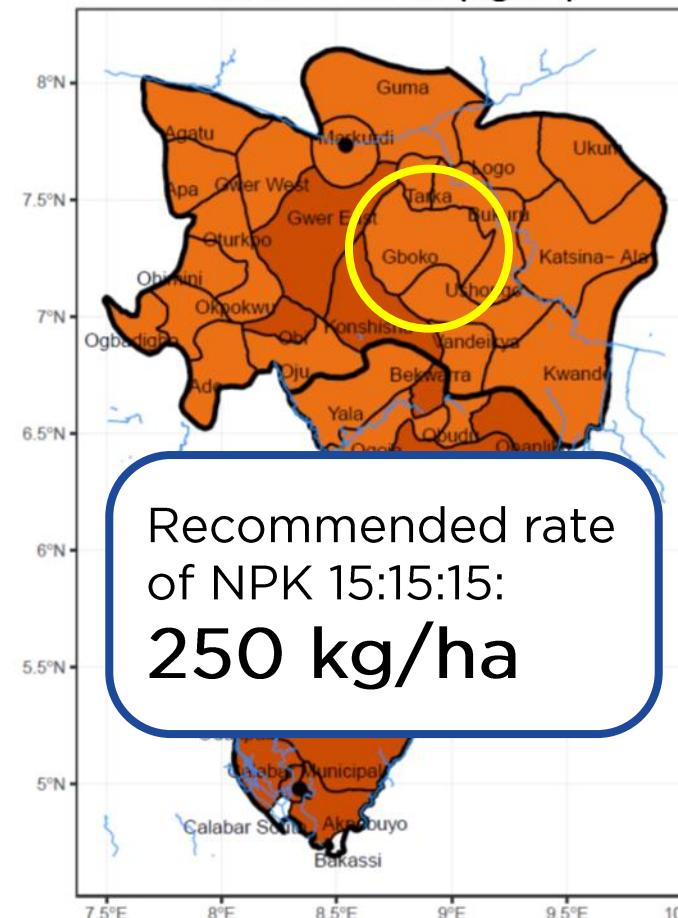
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Benue state ; planting in May ; yield class = **NORMAL**

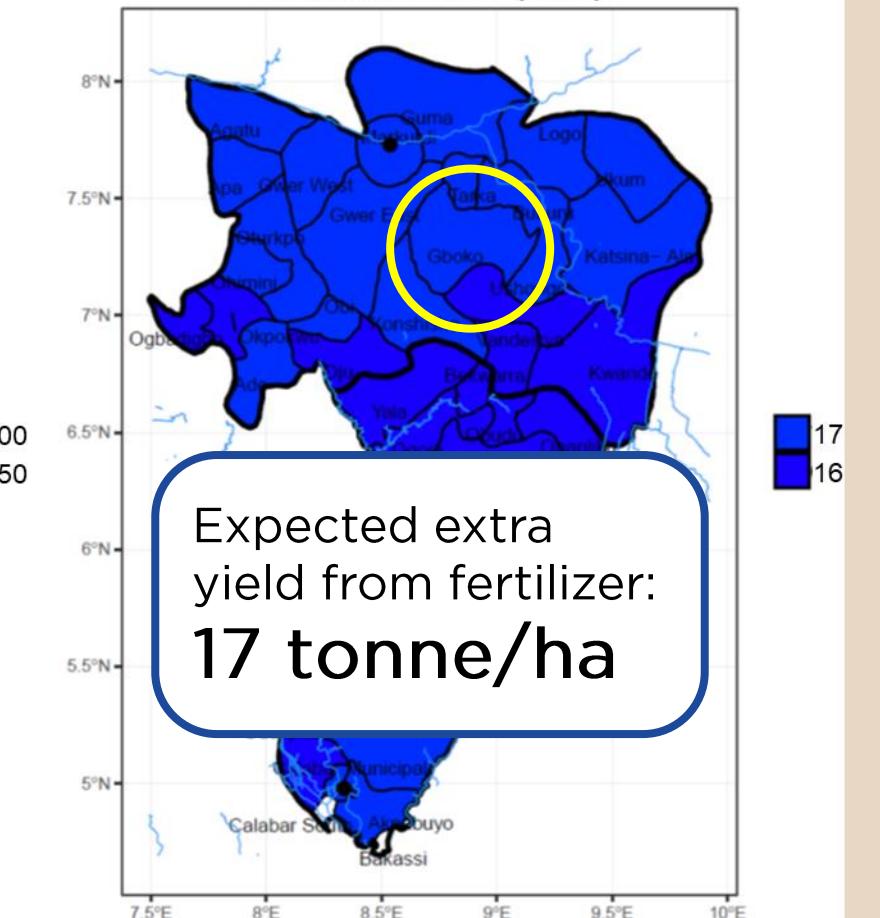
Urea (kg/ha)



NPK 15-15-15 (kg/ha)



Yield increase (t/ha)



3 Obtain the recommended fertilizer rate

The flyer also contains easy look-up tables:

3 Obtain the recommended fertilizer rate

The flyer also contains easy look-up tables:

		Planting in May	Current yield: NORMAL	
LGA	STATE	Urea (kg/ha)	NPK 15-15-15 (kg/ha)	Yield increase (t/ha)
Ado	Benue	150	250	17
Agatu	Benue	150	250	17
Apa	Benue	150	250	17
Bukuru	Benue	150	250	17
Gboko	Benue	150	250	17
Guma	Benue	150	250	17
Gwer East	Benue	150	250	17
Gwer West	Benue	175	250	17
Katsina-Ala	Benue	150	250	17
Konshisha	Benue	150	250	17
Kwande	Benue	150	250	14

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Guma	Benue	150	250	17
Gwer East	Benue	150	250	17
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Bukuru	Benue	150	250	17
Gboko	Benue	150	250	17
Guma	Benue	150	250	17
Gwer East	Benue	150	250	17
Gwer West	Benue	175	250	17
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Bukuru	Benue	150	250	17
Gboko	Benue	150	250	17
Guma	Benue	150	250	17
Gwer East	Benue	150	250	17
K...
K...
Kwande	Benue	150	250	14

Recommended rate of urea in Gboko: **150 kg/ha**

Recommended rate of NPK 15:15:15: **250 kg/ha**

Expected extra yield from fertilizer: **17 tonne/ha**

3 Obtain the recommended fertilizer rate

3

Obtain the recommended fertilizer rate

Consult the AKILIMO tool to obtain the recommended rate and expected yield response in your local government area, for your planting month and yield class. Provide your cassava sale price.

D
_____ kg / ha

Recommended urea rate

E
_____ kg / ha

Recommended NPK 15:15:15 rate

F
_____ tonnes / ha

Expected yield response

G
_____ ₦ / tonne

Expected sale price of cassava roots

Recommended rate
of urea in Gboko:
150 kg/ha

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17 tonnes / ha

Expected yield response

₦ / tonne

Expected sale price of cassava roots

For the cost benefit analysis in Step 4, you need to provide the price you expect to receive for 1 tonne of cassava roots.

Recommended rate
of urea in Gboko:
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Obtain the recommended fertilizer rate

Consult the AKILIMO tool to obtain the recommended rate and expected yield response in your local government area, for your planting month and yield class. Provide your cassava sale price.

150 kg / ha

Recommended urea rate

250 kg / ha

Recommended NPK 15:15:15 rate

17 tonnes / ha

Expected yield response

17,000 ₦ / tonne

Expected sale price of cassava roots

Recommended rate
of urea in Gboko:
150 kg/ha

Recommended rate
of NPK 15:15:15:
250 kg/ha

Expected extra
yield from fertilizer:
17 tonne/ha

For the cost benefit analysis in Step 4, you need to provide the price you expect to receive for 1 tonne of cassava roots.

3 Obtain the recommended fertilizer rate

We now know how to obtain the recommended fertilizer rates for 1 hectare.

Recommended rate
of urea in Gboko:
150 kg/ha

Recommended rate
of NPK 15:15:15:
250 kg/ha

Expected extra
yield from fertilizer:
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3 Obtain the recommended fertilizer rate

We now know how to obtain the recommended fertilizer rates for 1 hectare.

These need to be converted to the fertilizer amounts required for your field.

Recommended rate
of urea in Gboko:
150 kg/ha

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Expected extra
yield from fertilizer:
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3 Obtain the recommended fertilizer rate

We now know how to obtain the recommended fertilizer rates for 1 hectare.

These need to be converted to the fertilizer amounts required for your field.

Let's see how this is done in our example for a field of **0.2** hectare.

Recommended rate
of urea in Gboko:
150 kg/ha

Recommended rate
of NPK 15:15:15:
250 kg/ha

Expected extra
yield from fertilizer:
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We now know how to obtain the recommended fertilizer rates for 1 hectare.

These need to be converted to the fertilizer amounts required for your field.

Let's see how this is done in our example for a field of **0.2** hectare.

You simply need to multiply the rates with the area of your field:

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250 kg/ha

Expected extra
yield from fertilizer:
17 tonne/ha

3 Obtain the recommended fertilizer rate

Let's see how this is done in our example for a field of **0.2** hectare.

You simply need to multiply the rates with the area of your field:

$$0.2 \times 150 = 30 \text{ kg of urea}$$



Recommended rate
of urea in Gboko:
150 kg/ha

Recommended rate
of NPK 15:15:15:
250 kg/ha

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17 tonne/ha

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$$0.2 \times 17 = 3.4 \text{ tonnes of roots}$$



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of urea in Gboko:
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$$0.2 \times 17 = 3.4 \text{ tonnes of roots}$$



But is this profitable?

Let's continue to step **4** and do a cost-benefit analysis...

4 Do a cost-benefit analysis

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Using fertilizer only makes sense if the value gained from the increase in root yield is larger than the cost of fertilizer.

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The recommended fertilizer rates obtained in step **3** are calculated using the common prices of roots and prices of fertilizer in the country.

4 Do a cost-benefit analysis

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You must confirm profitability using the fertilizer prices in your local area, and your expected cassava root price.

4 Do a cost-benefit analysis

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Remember: under step **2**, we obtained prices of urea and NPK 15:15:15 from your local agrodealer.

4 Do a cost-benefit analysis

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The recommended fertilizer rates obtained in step **3** are calculated using the common prices of roots and prices of fertilizer in the country.

You must confirm profitability using the fertilizer prices in your local area, and your expected cassava root price.

Remember: under step **2**, we obtained prices of urea and NPK 15:15:15 from your local agrodealer.

 urea	<u>7,000</u> ₦ Price of a 50 kg bag	B
--	--	---

 NPK 15:15:15	<u>8,000</u> ₦ Price of a 50 kg bag	C
--	--	---

4 Do a cost-benefit analysis

Using fertilizer only makes sense if the value gained from the increase in root yield is larger than the cost of fertilizer.

The recommended fertilizer rates obtained in step **3** are calculated using the common prices of roots and prices of fertilizer in the country.

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And under step **3**, we recorded the expected sales price of the cassava roots.

4 Do a cost-benefit analysis

Using fertilizer only makes sense if the value gained from the increase in root yield is larger than the cost of fertilizer.

The recommended fertilizer rates obtained in step **3** are calculated using the common prices of roots and prices of fertilizer in the country.

You must confirm profitability using the fertilizer prices in your local area, and your expected cassava root price.

And under step **3**, we recorded the expected sales price of the cassava roots.

G
17,000 ₦ / tonne
Expected sales price of cassava roots

4 Do a cost-benefit analysis

You evaluate profitability by comparing

Expected Gross Value Increase

against

Total Cost of Fertilizer

4 Do a cost-benefit analysis

To calculate the

Expected Gross Value Increase

4 Do a cost-benefit analysis

To calculate the

Expected Gross Value Increase

Multiply the root price and the expected extra yield

Price of 1 tonne of
cassava roots (NGN)

×

Expected extra yield
(tonnes/ha)

4 Do a cost-benefit analysis

To calculate the

Total Cost of Fertilizer

4 Do a cost-benefit analysis

To calculate the

Total Cost of Fertilizer

Multiply the price of fertilizer and the rate, then add up

$$+ \frac{\text{Price of 1 bag of urea (NGN)}}{\text{Weight of 1 bag of urea (kg)}} \times \frac{\text{Urea needed for 1 ha (kg)}}$$

$$+ \frac{\text{Price of 1 bag of NPK (NGN)}}{\text{Weight of 1 bag of NPK (kg)}} \times \frac{\text{NPK needed for 1 ha (kg)}}$$

4 Do a cost-benefit analysis

The worksheet helps you do these calculations:

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	tonnes H
Increase in gross revenue	H x G	# I
Quantity of urea to apply	A x D	kg J
Quantity of NPK to apply	A x E	kg K
Cost of urea	J x B ÷ 50	# L
Cost of NPK	K x C ÷ 50	# M
Total cost	L + M	# N
Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P

4 Do a cost-benefit analysis

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Benefit cost ratio (BCR)	I ÷ N	P

0.2 A
Your field area ha

4 Do a cost-benefit analysis

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Profit from fertilizer	I - N	# O
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0.2 A
ha
Your field area

17 F
tonnes / ha
Expected yield response

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

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Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P

0.2 A
ha

Your field area

17 F
tonnes / ha

Expected yield response

$$0.2 \times 17 = 3.4$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.4 tonnes H
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0.2 A
ha
Your field area

17 F
tonnes / ha
Expected yield response

$$0.2 \times 17 = 3.4$$

4 Do a cost-benefit analysis

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17,000 ₦ / tonne G

Expected sale price of cassava roots

4 Do a cost-benefit analysis

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17,000 ₦ / tonne G

Expected sale price of cassava roots

$$3.4 \times 17,000 = 57,800$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

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0.2 A
ha
Your field area

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

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Benefit cost ratio (BCR)	I ÷ N	P

0.2 A
ha
Your field area

150 D
kg / ha
Recommended urea rate

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

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Cost of NPK	K x C ÷ 50	# M
Total cost	L + M	# N
Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P

0.2 A
ha
Your field area

150 D
kg / ha
Recommended urea rate

$$0.2 \times 150 = 30$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.4 tonnes H
Increase in gross revenue	H x G	57,800 # I
Quantity of urea to apply	A x D	30 kg J
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Cost of urea	J x B ÷ 50	# L
Cost of NPK	K x C ÷ 50	# M
Total cost	L + M	# N
Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P

0.2 A
ha
Your field area

150 D
kg / ha
Recommended urea rate

$$0.2 \times 150 = 30$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

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4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	$A \times F$	3.4 tonnes H
Increase in gross revenue	$H \times G$	57,800 # I
Quantity of urea to apply	$A \times D$	30 kg J
Quantity of NPK to apply	$A \times E$	kg K
Cost of urea	$J \times B \div 50$	# L
Cost of NPK	$K \times C \div 50$	# M
Total cost	$L + M$	# N
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Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P

0.2 A
ha
Your field area

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Cost of NPK	K x C ÷ 50	# M
Total cost	L + M	# N
Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P

0.2 A
ha
Your field area

250 E
kg / ha
Recommended NPK 15:15:15 rate

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

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Increase in gross revenue	H x G	57,800 # I
Quantity of urea to apply	A x D	30 kg J
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Cost of urea	J x B ÷ 50	# L
Cost of NPK	K x C ÷ 50	# M
Total cost	L + M	# N
Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P

0.2 A
ha
Your field area

250 E
kg / ha
Recommended NPK 15:15:15 rate

$$0.2 \times 250 = 50$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.4 tonnes H
Increase in gross revenue	H x G	57,800 # I
Quantity of urea to apply	A x D	30 kg J
Quantity of NPK to apply	A x E	50 kg K
Cost of urea	J x B ÷ 50	# L
Cost of NPK	K x C ÷ 50	# M
Total cost	L + M	# N
Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P

0.2 A
ha
Your field area

250 E
kg / ha
Recommended NPK 15:15:15 rate

$$0.2 \times 250 = 50$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.4 tonnes H
Increase in gross revenue	H x G	57,800 # I
Quantity of urea to apply	A x D	30 kg J
Quantity of NPK to apply	A x E	50 kg K
Cost of urea	J x B ÷ 50	# L
Cost of NPK	K x C ÷ 50	# M
Total cost	L + M	# N
Profit from fertilizer	I - N	# O
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4 Do a cost-benefit analysis

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Now do the following calculations:

Increase in production	$A \times F$	3.4 tonnes H
Increase in gross revenue	$H \times G$	57,800 # I
Quantity of urea to apply	$A \times D$	30 kg J
Quantity of NPK to apply	$A \times E$	50 kg K
Cost of urea	$J \times B \div 50$	# L
Cost of NPK	$K \times C \div 50$	# M
Total cost	$L + M$	# N
Profit from fertilizer	$I - N$	# O
Benefit cost ratio (BCR)	$I \div N$	P

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Now do the following calculations:

Increase in production	$A \times F$	3.4 tonnes H
Increase in gross revenue	$H \times G$	57,800 # I
Quantity of urea to apply	$A \times D$	30 kg J
Quantity of NPK to apply	$A \times E$	50 kg K
Cost of urea	$J \times B \div 50$	# L
Cost of NPK	$K \times C \div 50$	# M
Total cost	$L + M$	# N
Profit from fertilizer	$I - N$	# O
Benefit cost ratio (BCR)	$I \div N$	P

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	$A \times F$	3.4 tonnes H
Increase in gross revenue	$H \times G$	57800 # I
Quantity of urea to apply	$A \times D$	30 kg J
Quantity of NPK to apply	$A \times E$	50 kg K
Cost of urea	$J \times B \div 50$	# L
Cost of NPK	$K \times C \div 50$	# M
Total cost	$L + M$	# N
Profit from fertilizer	$I - N$	# O
Benefit cost ratio (BCR)	$I \div N$	P

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Cost of NPK	K x C ÷ 50	# M
Total cost	L + M	# N
Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P



$$30 \times 7,000 \div 50 = 4,200$$

4 Do a cost-benefit analysis

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Now do the following calculations:

Increase in production	A x F	3.4 tonnes H
Increase in gross revenue	H x G	57,800 # I
Quantity of urea to apply	A x D	30 kg J
Quantity of NPK to apply	A x E	50 kg K
Cost of urea	J x B ÷ 50	4,200 # L
Cost of NPK	K x C ÷ 50	# M
Total cost	L + M	# N
Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P



$$30 \times 7,000 \div 50 = 4,200$$

4 Do a cost-benefit analysis

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Now do the following calculations:

Increase in production	$A \times F$	3.4 tonnes H
Increase in gross revenue	$H \times G$	57,800 # I
Quantity of urea to apply	$A \times D$	30 kg J
Quantity of NPK to apply	$A \times E$	50 kg K
Cost of urea	$J \times B \div 50$	4,200 # L
Cost of NPK	$K \times C \div 50$	# M
Total cost	$L + M$	# N
Profit from fertilizer	$I - N$	# O
Benefit cost ratio (BCR)	$I \div N$	P

4 Do a cost-benefit analysis

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Now do the following calculations:

Increase in production	A x F	3.4 tonnes H
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Benefit cost ratio (BCR)	I ÷ N	P

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

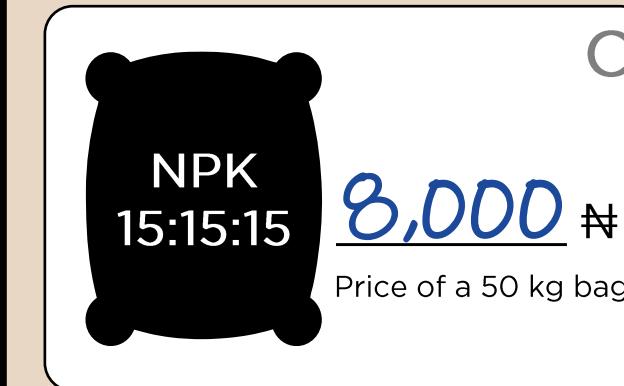
Increase in production	$A \times F$	3.4 tonnes H
Increase in gross revenue	$H \times G$	57,800 ₦ I
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Total cost	$L + M$	₦ N
Profit from fertilizer	$I - N$	₦ O
Benefit cost ratio (BCR)	$I \div N$	P

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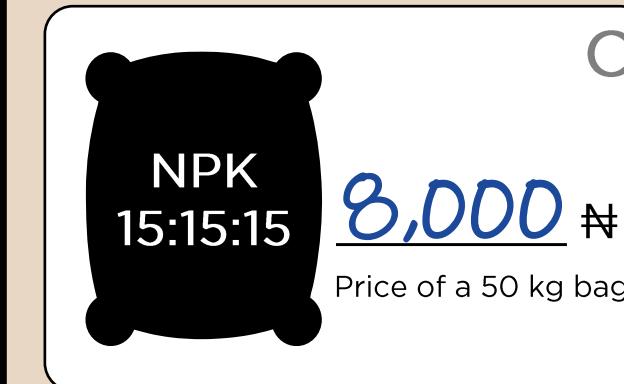
$$50 \times 8,000 \div 50 = 8,000$$

4 Do a cost-benefit analysis

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Increase in production	A x F	3.4 tonnes H
Increase in gross revenue	H x G	57,800 # I
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Total cost	L + M	# N
Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P



$$50 \times 8,000 \div 50 = 8,000$$

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Total cost	$L + M$	# N
Profit from fertilizer	$I - N$	# O
Benefit cost ratio (BCR)	$I \div N$	P

4,200

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	$A \times F$	3.4 tonnes H
Increase in gross revenue	$H \times G$	57,800 # I
Quantity of urea to apply	$A \times D$	30 kg J
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Cost of urea	$J \times B \div 50$	4,200 # L
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Total cost	$L + M$	# N
Profit from fertilizer	$I - N$	# O
Benefit cost ratio (BCR)	$I \div N$	P

4,200

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Now do the following calculations:

Increase in production	$A \times F$	3.4 tonnes H
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Total cost	$L + M$	# N
Profit from fertilizer	$I - N$	# O
Benefit cost ratio (BCR)	$I \div N$	P

$$4,200 + 8,000$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.4 tonnes H
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Cost of urea	J x B ÷ 50	4,200 # L
Cost of NPK	K x C ÷ 50	8,000 # M
Total cost	L + M	# N
Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P

$$4,200 + 8,000 = 12,200$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.4 tonnes H
Increase in gross revenue	H x G	57,800 # I
Quantity of urea to apply	A x D	30 kg J
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Cost of urea	J x B ÷ 50	4,200 # L
Cost of NPK	K x C ÷ 50	8,000 # M
Total cost	L + M	12,200 # N
Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P

$$4,200 + 8,000 = 12,200$$

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Profit from fertilizer	I - N	# O
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Total cost	$L + M$	12,200 # N
Profit from fertilizer	$I - N$	# O
Benefit cost ratio (BCR)	$I \div N$	P

57,800

4 Do a cost-benefit analysis

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Cost of NPK	$K \times C \div 50$	8,000 # M
Total cost	$L + M$	12,200 # N
Profit from fertilizer	$I - N$	57,800 # O
Benefit cost ratio (BCR)	$I \div N$	P

57,800

4 Do a cost-benefit analysis

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Total cost	$L + M$	12,200 # N
Profit from fertilizer	$I - N$	# O
Benefit cost ratio (BCR)	$I \div N$	P

$$57,800 - 12,200$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.4 tonnes H
Increase in gross revenue	H x G	57,800 # I
Quantity of urea to apply	A x D	30 kg J
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Cost of urea	J x B ÷ 50	4,200 # L
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Total cost	L + M	12,200 # N
Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P

$$57,800 - 12,200 = 45,600$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.4 tonnes H
Increase in gross revenue	H x G	57,800 # I
Quantity of urea to apply	A x D	30 kg J
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Cost of urea	J x B ÷ 50	4,200 # L
Cost of NPK	K x C ÷ 50	8,000 # M
Total cost	L + M	12,200 # N
Profit from fertilizer	I - N	45,600 # O
Benefit cost ratio (BCR)	I ÷ N	P

$$57,800 - 12,200 = 45,600$$

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Total cost	L + M	12,200 # N
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4 Do a cost-benefit analysis

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Quantity of urea to apply	$A \times D$	30 kg J
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Cost of NPK	$K \times C \div 50$	8,000 # M
Total cost	$L + M$	12,200 # N
Profit from fertilizer	$I - N$	45,600 # O
Benefit cost ratio (BCR)	$I \div N$	P

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	$A \times F$	2.4 tonnes H
Increase in gross revenue	$H \times G$	57,800 # I
Quantity of urea to apply	$A \times D$	30 kg J
Quantity of NPK to apply	$A \times E$	50 kg K
Cost of urea	$J \times B \div 50$	4,200 # L
Cost of NPK	$K \times C \div 50$	8,000 # M
Total cost	$L + M$	12,200 # N
Profit from fertilizer	$I - N$	45,600 # O
Benefit cost ratio (BCR)	$I \div N$	P

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	$A \times F$	2.4 tonnes H
Increase in gross revenue	$H \times G$	57,800 # I
Quantity of urea to apply	$A \times D$	30 kg J
Quantity of NPK to apply	$A \times E$	50 kg K
Cost of urea	$J \times B \div 50$	4,200 # L
Cost of NPK	$K \times C \div 50$	8,000 # M
Total cost	$L + M$	12,200 # N
Profit from fertilizer	$I - N$	45,600 # O
Benefit cost ratio (BCR)	$I \div N$	P

57,800

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	$A \times F$	3.4 tonnes H
Increase in gross revenue	$H \times G$	57,800 # I
Quantity of urea to apply	$A \times D$	30 kg J
Quantity of NPK to apply	$A \times E$	50 kg K
Cost of urea	$J \times B \div 50$	4,200 # L
Cost of NPK	$K \times C \div 50$	8,000 # M
Total cost	$L + M$	12,200 # N
Profit from fertilizer	$I - N$	45,600 # O
Benefit cost ratio (BCR)	$I \div N$	P

57,800

4 Do a cost-benefit analysis

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Increase in production	$A \times F$	3.4 tonnes H
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Total cost	$L + M$	12,200 # N
Profit from fertilizer	$I - N$	45,600 # O
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$$57,800 \div 12,200$$

4 Do a cost-benefit analysis

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Now do the following calculations:

Increase in production	A x F	3.4 tonnes H
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Total cost	L + M	12,200 # N
Profit from fertilizer	I - N	45,600 # O
Benefit cost ratio (BCR)	I ÷ N	P

$$57,800 \div 12,200 = 4.7$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.4 tonnes H
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Quantity of urea to apply	A x D	30 kg J
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Cost of NPK	K x C ÷ 50	8,000 # M
Total cost	L + M	12,200 # N
Profit from fertilizer	I - N	45,600 # O
Benefit cost ratio (BCR)	I ÷ N	4.7 P

$$57,800 \div 12,200 = 4.7$$

4 Do a cost-benefit analysis

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Now do the following calculations:

Increase in production	A x F	3.4 tonnes H
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Total cost	L + M	12,200 # N
Profit from fertilizer	I - N	45,600 # O
Benefit cost ratio (BCR)	I ÷ N	4.7 P

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- 1 What is the increase in gross revenue?

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- 1 What is the increase in gross revenue?

We expect to produce an additional 3.4 tonnes of cassava roots in our field. This has value of 57,800 ₦.

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- 1 What is the increase in gross revenue? **57,800 ₦**

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- 1 What is the increase in gross revenue? 57,800 ₦
- 2 What is the total cost of fertilizer?

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- 1 What is the increase in gross revenue? 57,800 ₦
- 2 What is the total cost of fertilizer?
We calculated that our field needs 30 kg of urea and 50 kg of NPK 15:15:15.
This has a cost of $4,200 + 8000 = 12,200$ ₦.

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- | | | |
|---|--|----------|
| 1 | What is the increase in gross revenue? | 57,800 ₦ |
| 2 | What is the total cost of fertilizer? | 12,200 ₦ |

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- | | | |
|---|--|----------|
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| 3 | What is the profit from fertilizer? | |

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- 1 What is the increase in gross revenue? 57,800 #
- 2 What is the total cost of fertilizer? - 12,200 #
- 3 What is the profit from fertilizer? 45,600 #

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- | | | |
|---|--|------------|
| 1 | What is the increase in gross revenue? | 57,800 ₦ |
| 2 | What is the total cost of fertilizer? | - 12,200 ₦ |
| 3 | What is the profit from fertilizer? | 45,600 ₦ |

Whether this profit is large enough depends on your risk appetite.

4 Do a cost-benefit analysis

Let's look at your risk appetite. How often do you invest in new farm products or technologies?

4 Do a cost-benefit analysis

Let's look at your risk appetite. How often do you invest in new farm products or technologies?

Farmers who invest often in new products or technologies like taking risks, and can usually also afford to make investments that do not pay off.

The lower your risk appetite, the larger the expected profit margin must therefore be, to justify an investment in fertilizer.

4 Do a cost-benefit analysis

Let's look at your risk appetite. How often do you invest in new farm products or technologies?

Very rarely

Sometimes

Often

4 Do a cost-benefit analysis

Let's look at your risk appetite. How often do you invest in new farm products or technologies?

Very rarely

Sometimes

Often

You don't like taking risks

4 Do a cost-benefit analysis

Let's look at your risk appetite. How often do you invest in new farm products or technologies?

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Only invest in fertilizer if
Expected Gross Value Increase
is at least 3 times larger than
Total Cost of Fertilizer

4 Do a cost-benefit analysis

Let's look at your risk appetite. How often do you invest in new farm products or technologies?

Very rarely

Sometimes

Often

You don't like taking risks

You can accept some risk

Only invest in fertilizer if
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4 Do a cost-benefit analysis

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Only invest in fertilizer if
Expected Gross Value Increase
is at least twice as large as
Total Cost of Fertilizer

4 Do a cost-benefit analysis

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Only invest in fertilizer if
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is at least twice as large as
Total Cost of Fertilizer

Only invest in fertilizer if
Expected Gross Value Increase
is at least 20% larger than
Total Cost of Fertilizer

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- | | | |
|---|--|------------|
| 1 | What is the increase in gross revenue? | 57,800 ₦ |
| 2 | What is the total cost of fertilizer? | - 12,200 ₦ |
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Whether this profit is large enough depends on your risk appetite.

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Let's evaluate: is fertilizer use profitable?

1	What is the increase in gross revenue?	57,800 ₩
2	What is the total cost of fertilizer?	- 12,200 ₩
3	What is the profit from fertilizer?	45,600 ₩

Whether this profit is large enough depends on your risk appetite.

$$3 \times \text{cost} = 3 \times 12,200 = 36,300$$

$36,300 < 57,800 \rightarrow$ Fertilizer is recommended!
(even if you are very risk-averse)

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- | | | |
|---|--|------------|
| 1 | What is the increase in gross revenue? | 57,800 # |
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The farmer's worksheet guides you through these steps.

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$$57,800 \div 12,200 = 4.7$$

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Benefit cost ratio (BCR)	$I \div N$	4.7	P
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How often do you invest in new farm products or technologies?

- Rarely You don't like taking risks. Invest in fertilizer if $BCR(P) > 2.8$
- Sometimes You can accept some risk. Invest in fertilizer if $BCR(P) > 2$
- Often You like taking risks. Invest in fertilizer if $BCR(P) > 1.2$

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You can accept some risk.

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- Often

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Invest in fertilizer if BCR (P) > 1.2

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4.7 > 2.8!

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This is also explained in the farmer's worksheet:

5 Apply fertilizer at the right time

Apply fertilizer in multiple splits. Start at 1 month after planting. Spread next splits over the next 2-3 months as rains permit.

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Let's look at our example for our field of **0.2** hectare.

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Let's look at our example for our field of **0.2** hectare.

Remember: we had previously calculated the amounts of NPK 15:15:15 and urea to apply.



50 kg



30 kg

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When is this fertilizer now best applied?

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Cassava will grow for a period of about 12 months...



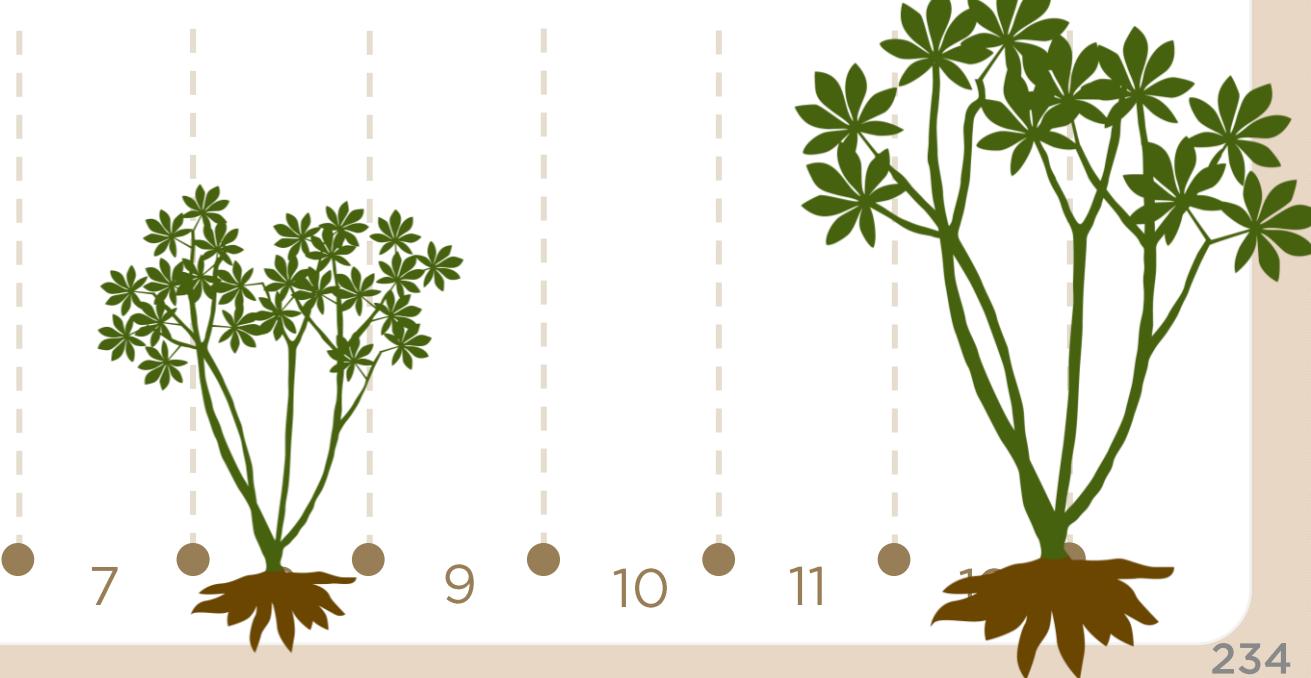
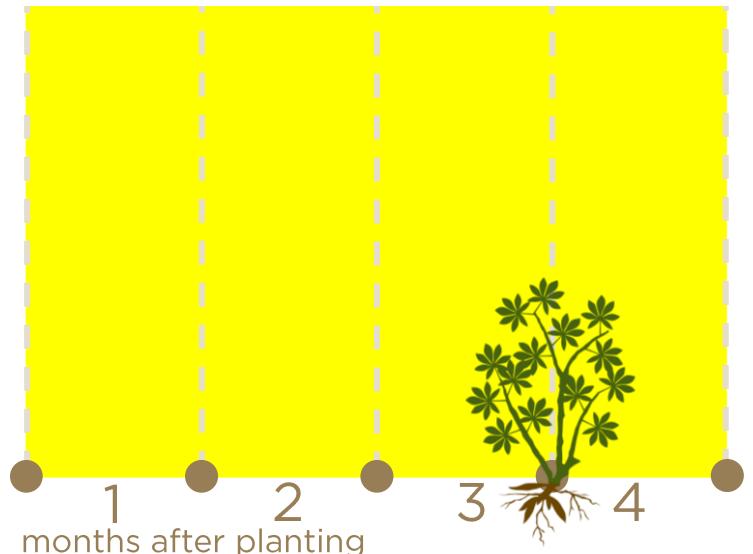
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Let's look at our example for our field of **0.2** hectare.

Fertilizer is best applied in the first 4 months.



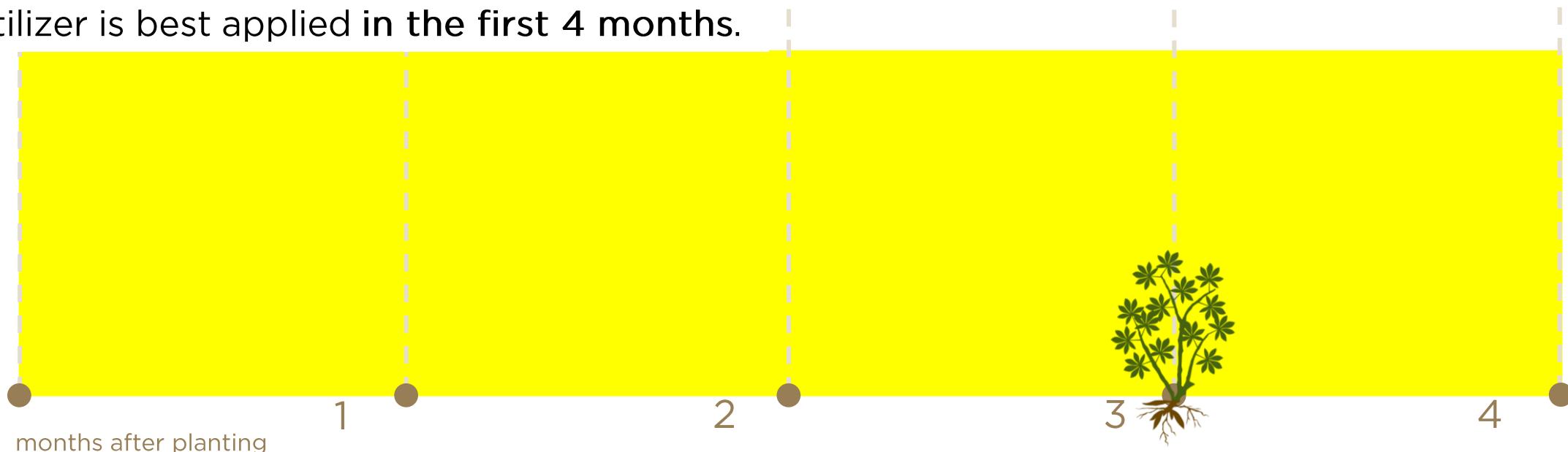
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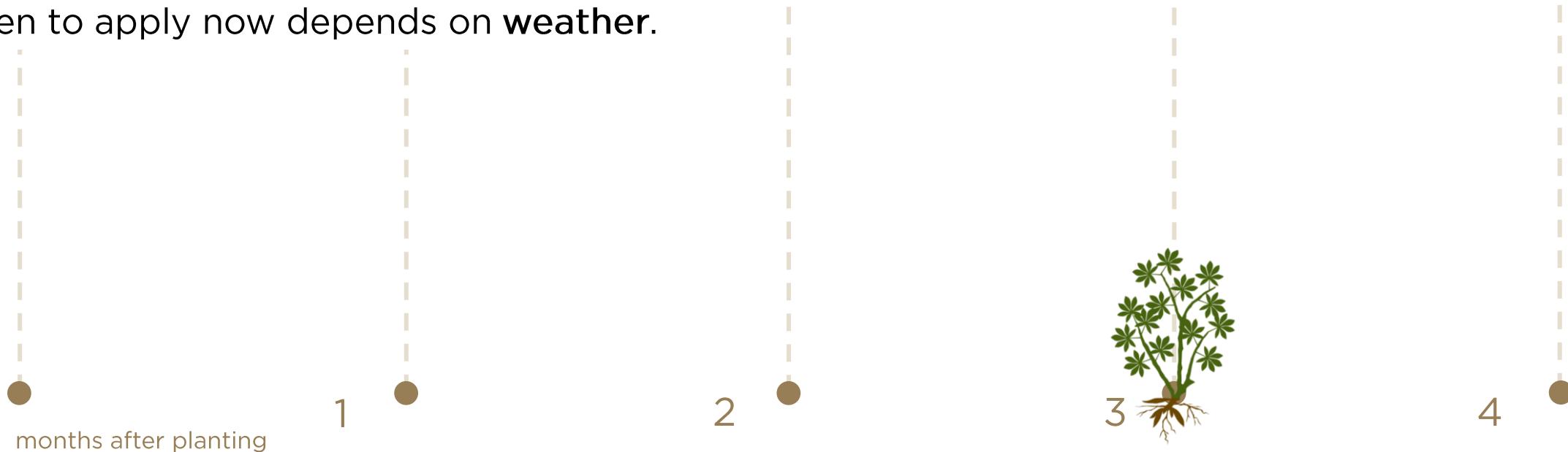
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Let's look at our example for our field of **0.2** hectare.

When to apply now depends on **weather**.



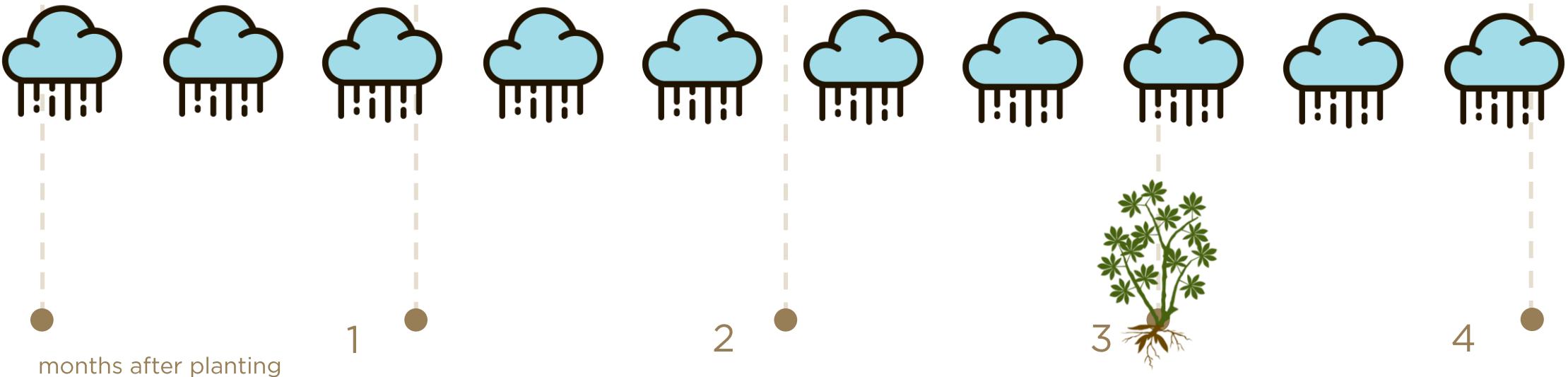
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Let's look at our example for our field of **0.2** hectare.

If you expect ample and regular rainfall...

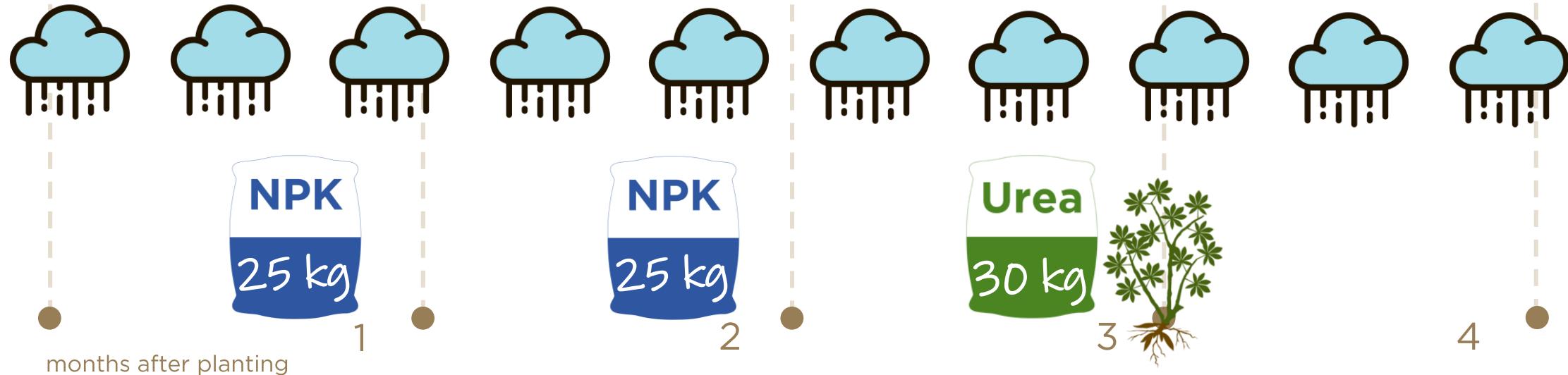


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Let's look at our example for our field of **0.2** hectare.

If you expect ample and regular rainfall... then split and spread the fertilizer application.

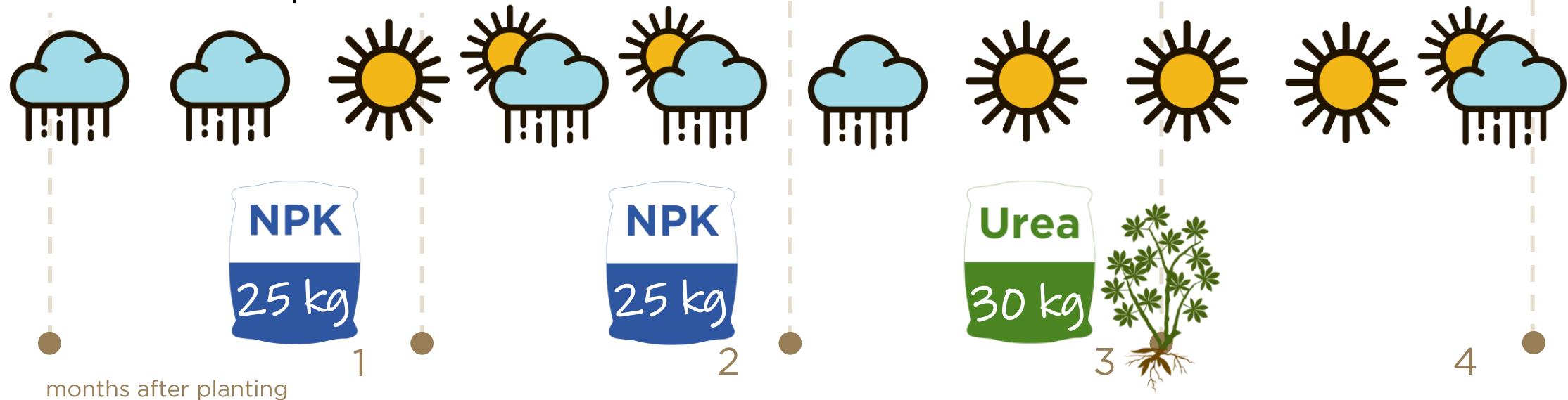


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If rainfall is less frequent...

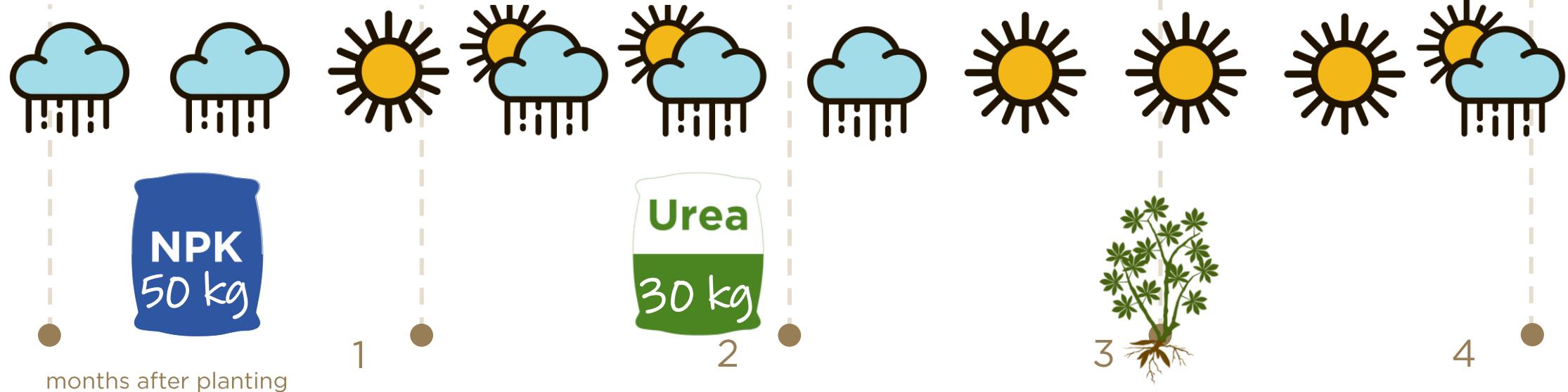


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Let's look at our example for our field of **0.2** hectare.

If rainfall is less frequent... then apply sooner and in fewer splits.

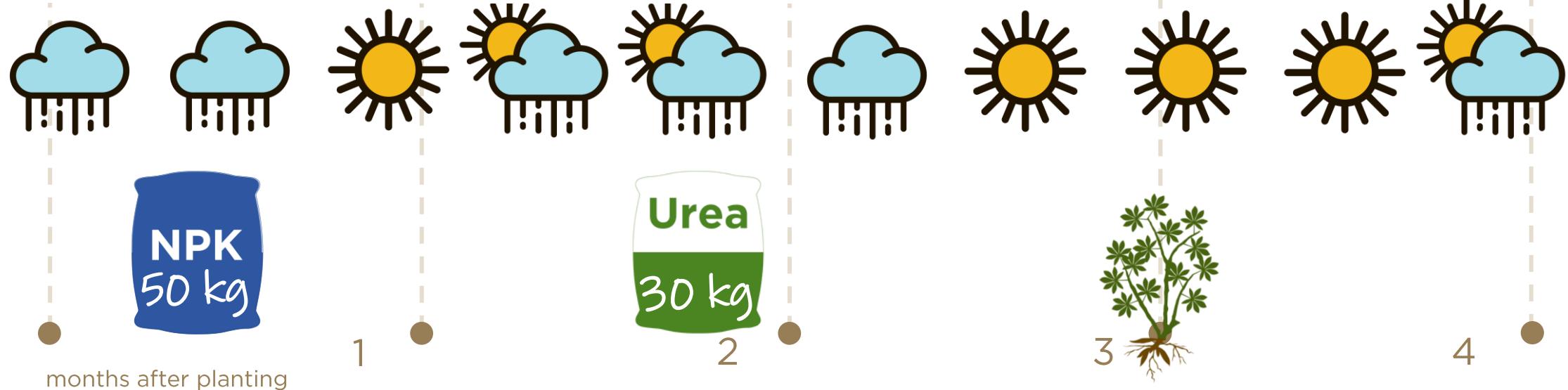


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These are examples!

You can modify this, but remember to apply NPK 15:15:15 first, then spread subsequent fertilizer applications as much as possible. Only apply fertilizer if the soil is moist and you expect continued rainfall in the weeks after application.

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These are examples!

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Especially with high fertilizer doses, it is important to split and spread application. That way, nutrients will be less easily washed away by rain, and then nutrients in the fertilizer are available when the cassava crop needs them.

6 Apply fertilizer in the right way

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Apply in a half-moon or full ring furrow around each plant and cover with soil. Only apply fertilizer if the soil is moist.

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- Make a 5 cm deep half-moon or full ring furrow about 20 cm away from each cassava plant.
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50 kg per hectare
is about 1 full
crown cap per plant



If you plant at 1 m between rows and 0.8 m within row (12,500 plants per hectare), then 1 bag of fertilizer per hectare is about 1 levelled crown cap of fertilizer per plant.

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Let's look at our example for our field of **0.2** hectare.

We had obtained the recommended rates for Gboko, Benue state, when planting in May.

Recommended rate
of urea in Gboko:
150 kg/ha

Recommended rate
of NPK 15:15:15:
250 kg/ha

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= about 50 kg per hectare

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So let's now see how much this is per plant...

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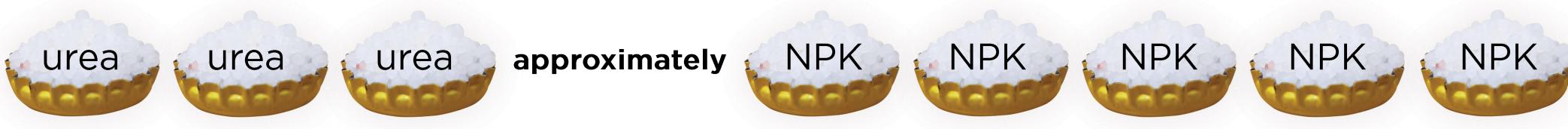
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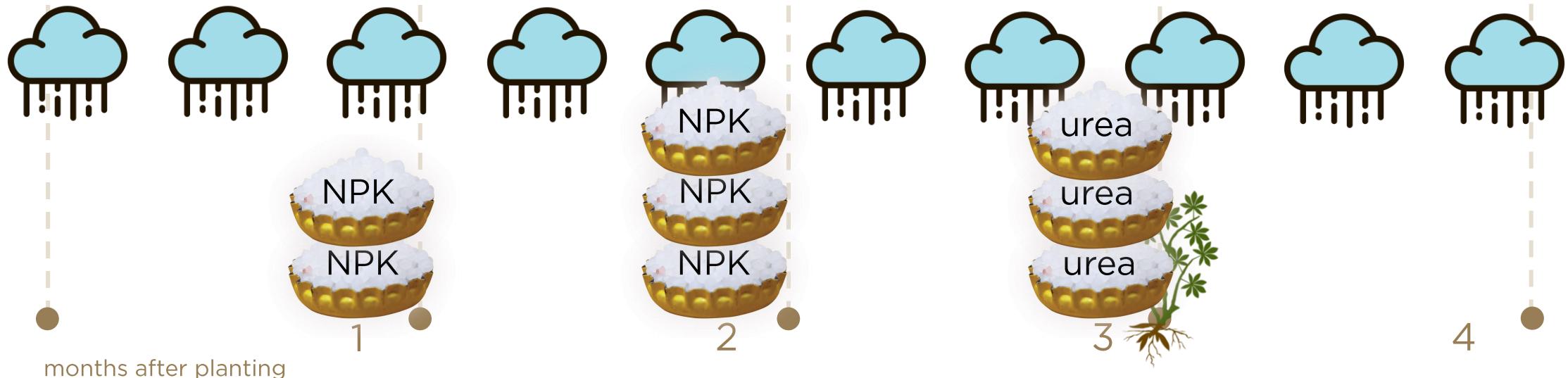
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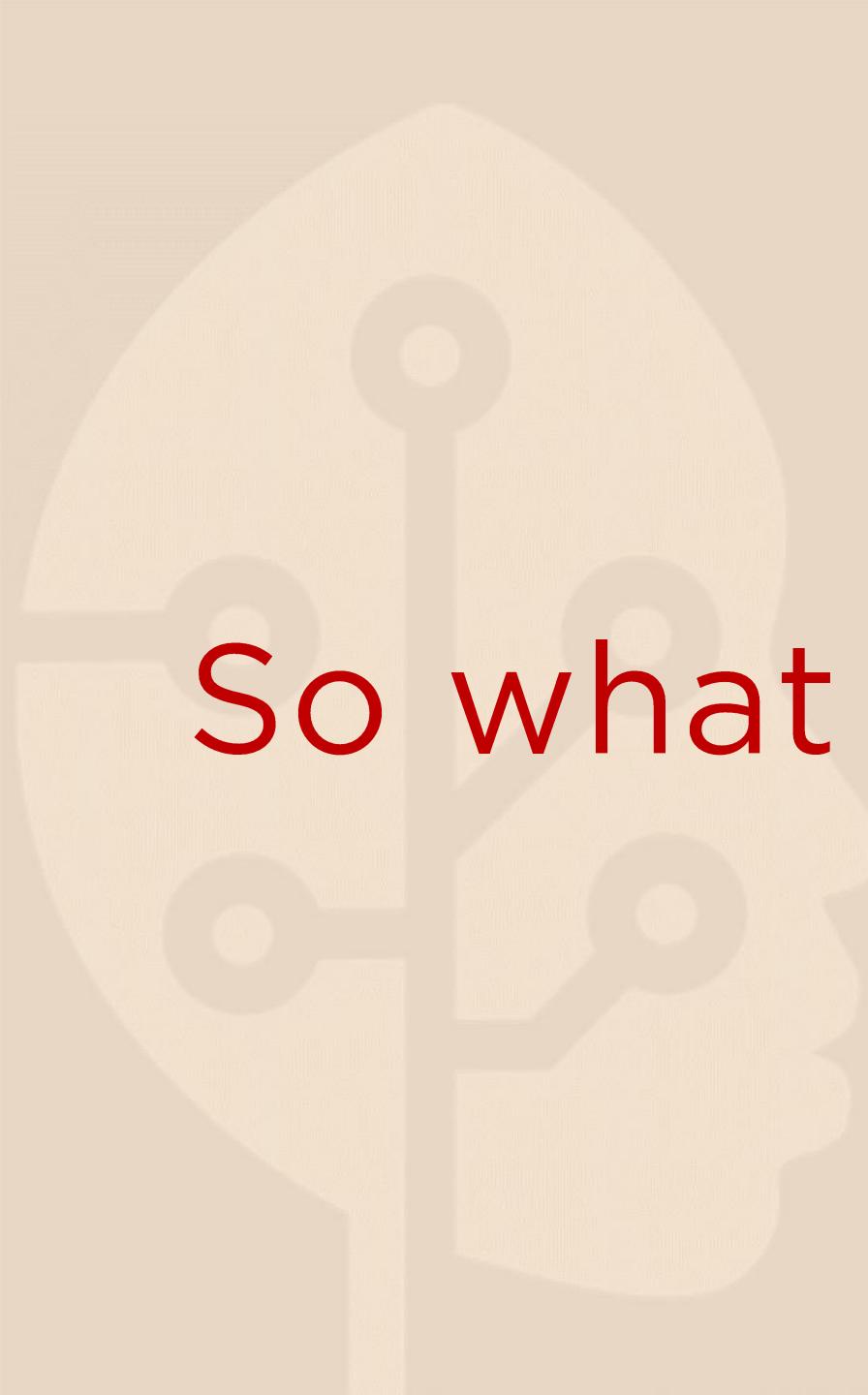
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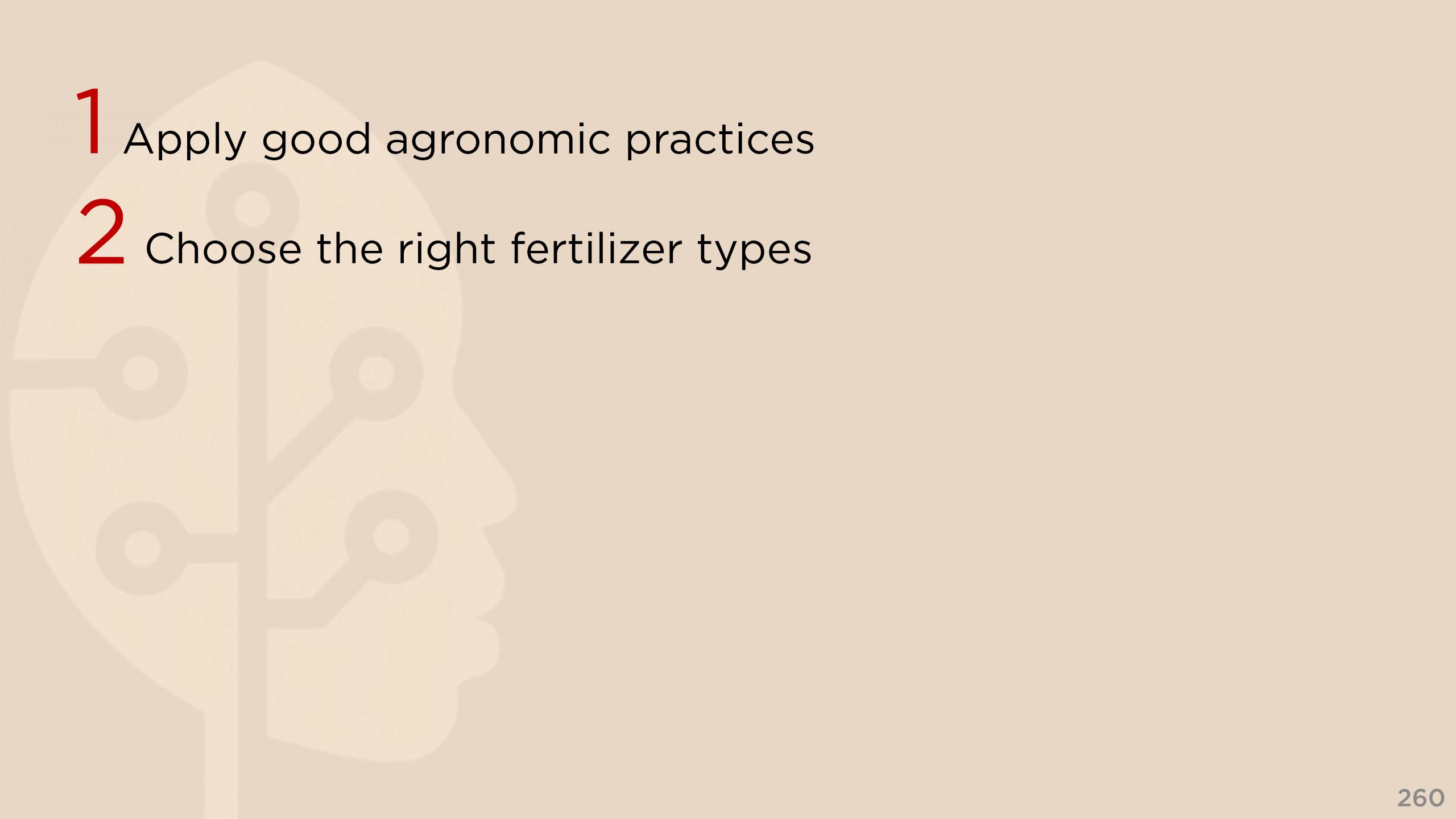


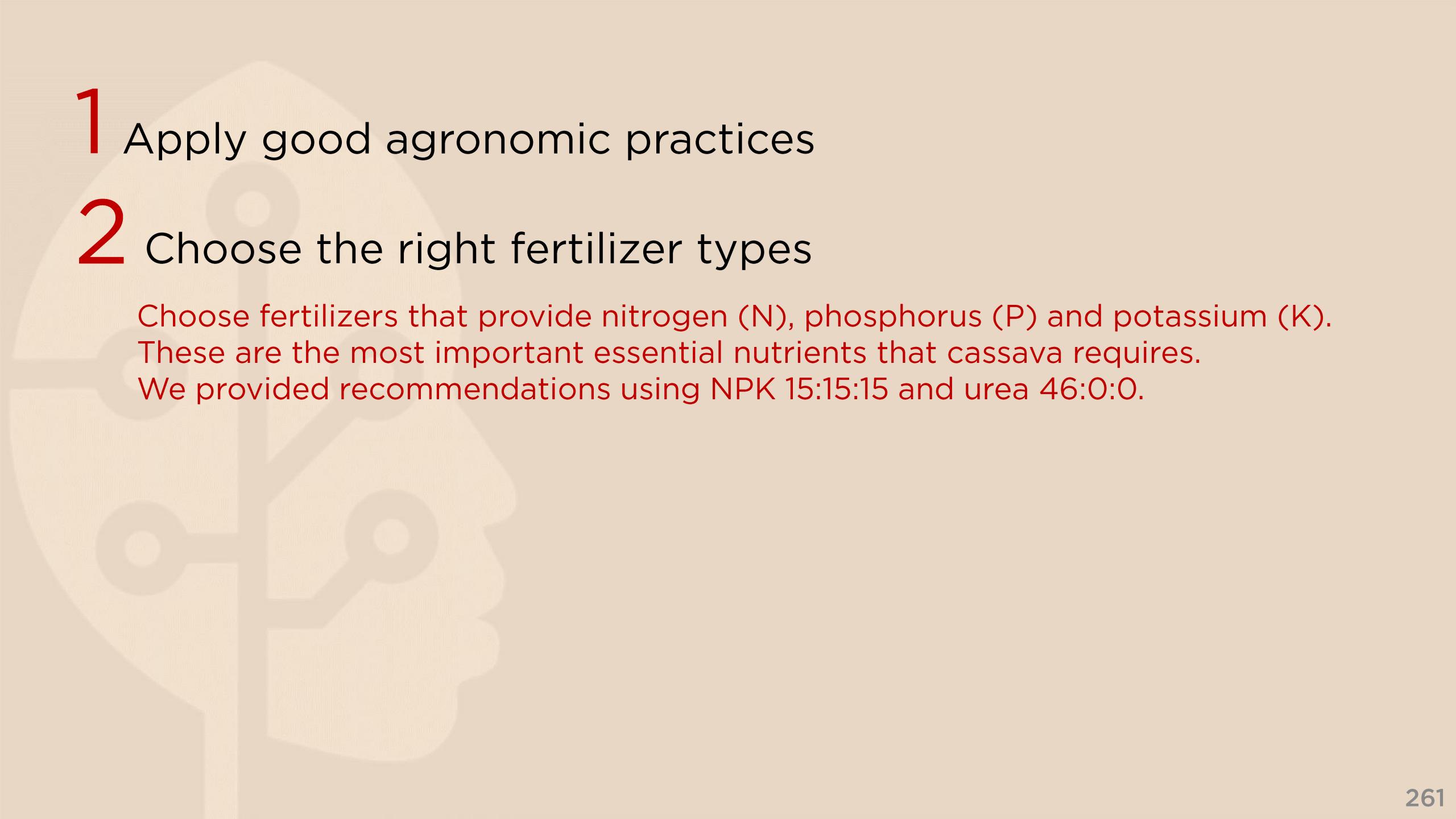
So what have we learned?

1 Apply good agronomic practices

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Fertilizer use is only sensible if good agronomic practices are upheld! Practice good land preparation and weed control, plant disease-free cuttings of improved varieties, and plant in lines at the right density.

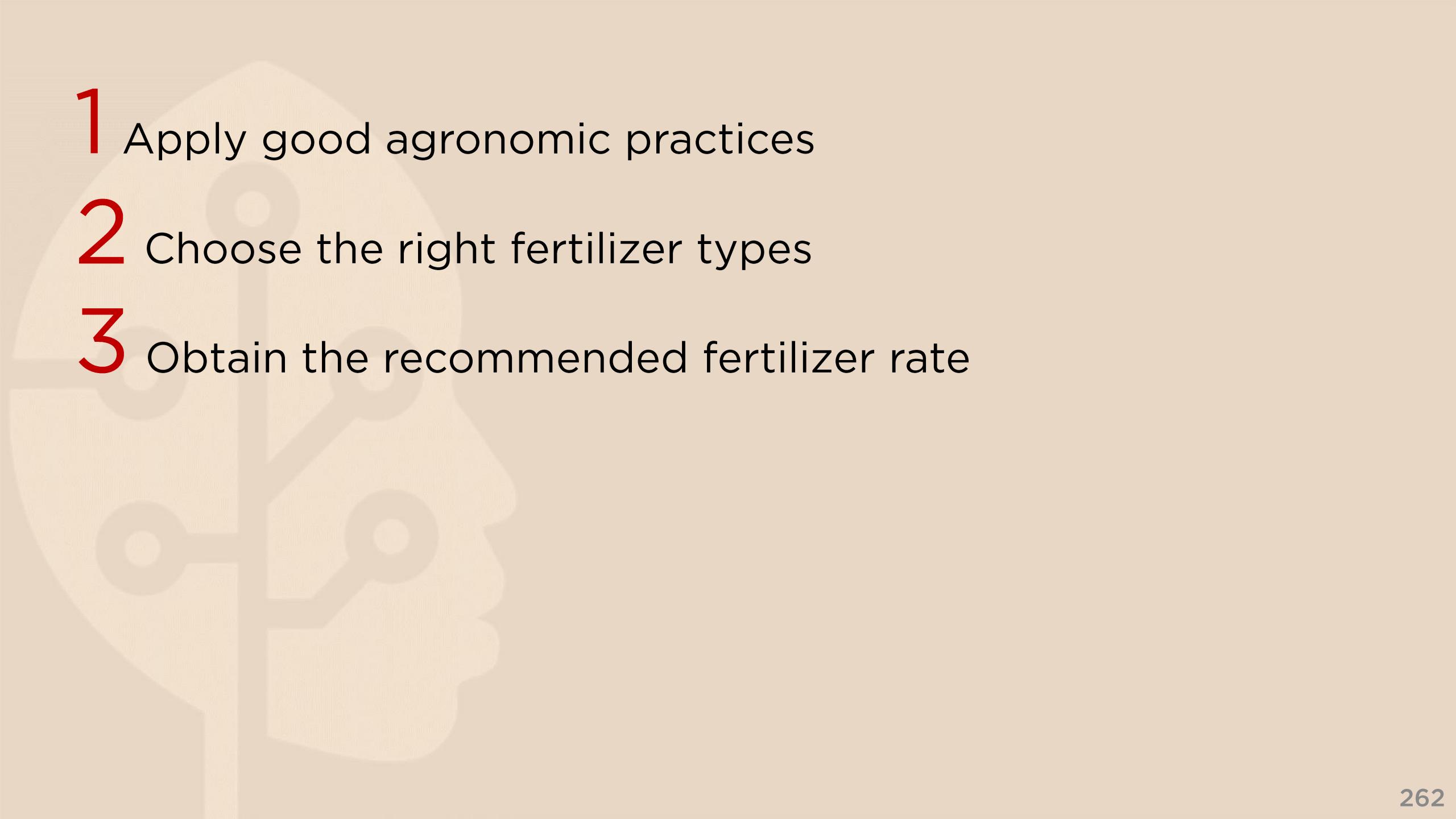
- 
- 1 Apply good agronomic practices
 - 2 Choose the right fertilizer types



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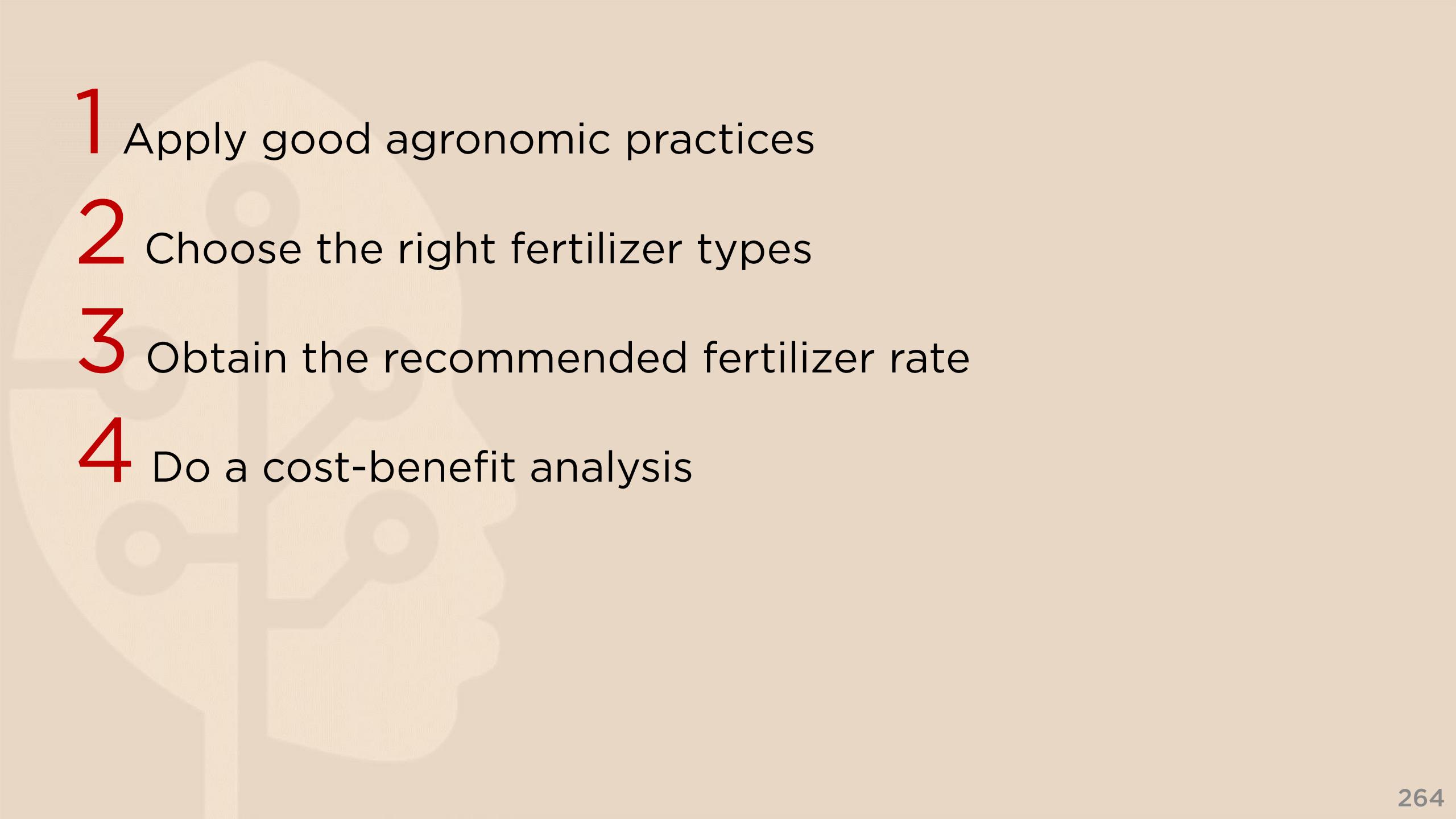
2 Choose the right fertilizer types

Choose fertilizers that provide nitrogen (N), phosphorus (P) and potassium (K). These are the most important essential nutrients that cassava requires. We provided recommendations using NPK 15:15:15 and urea 46:0:0.

- 
- 1** Apply good agronomic practices
 - 2** Choose the right fertilizer types
 - 3** Obtain the recommended fertilizer rate

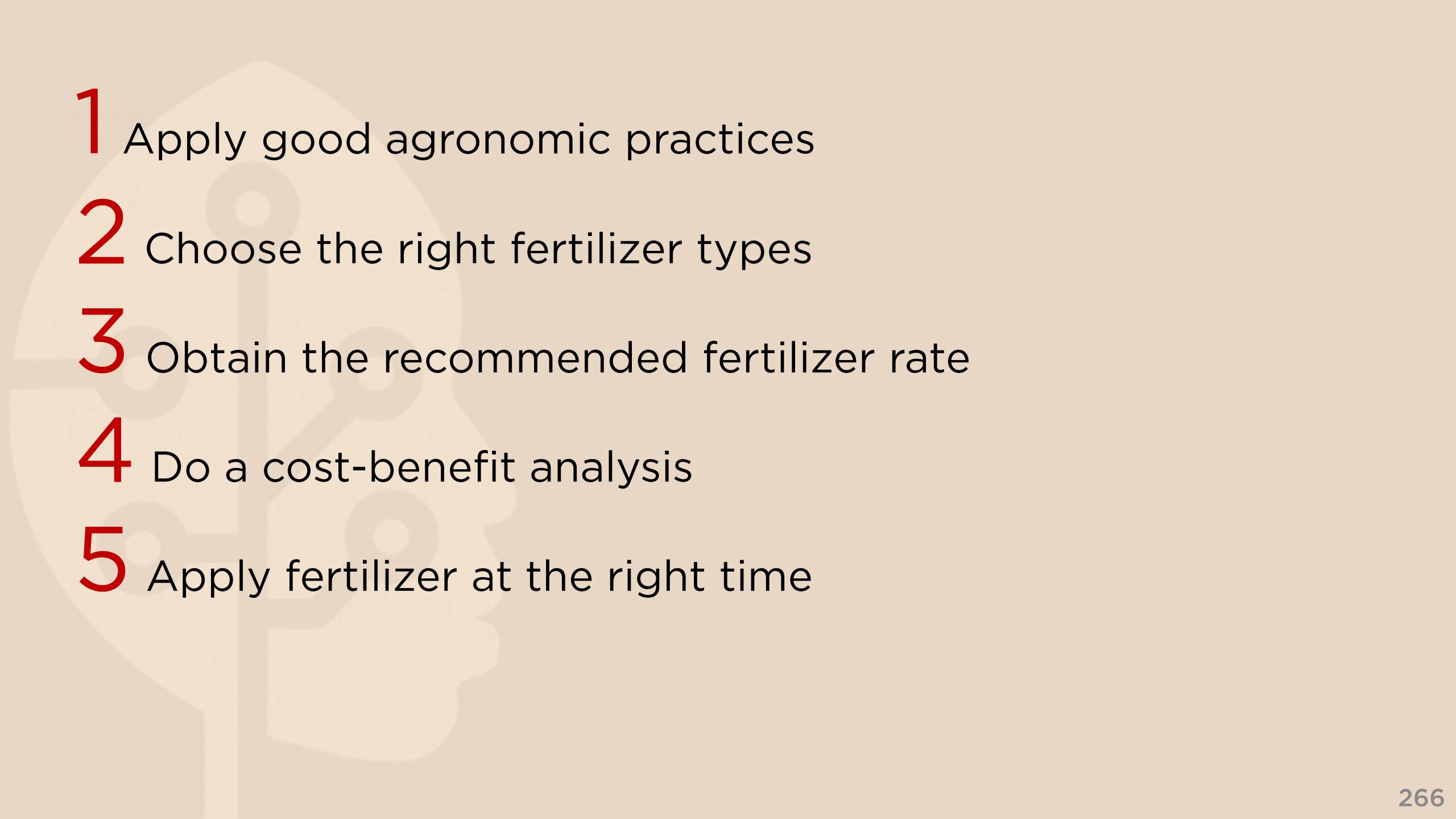
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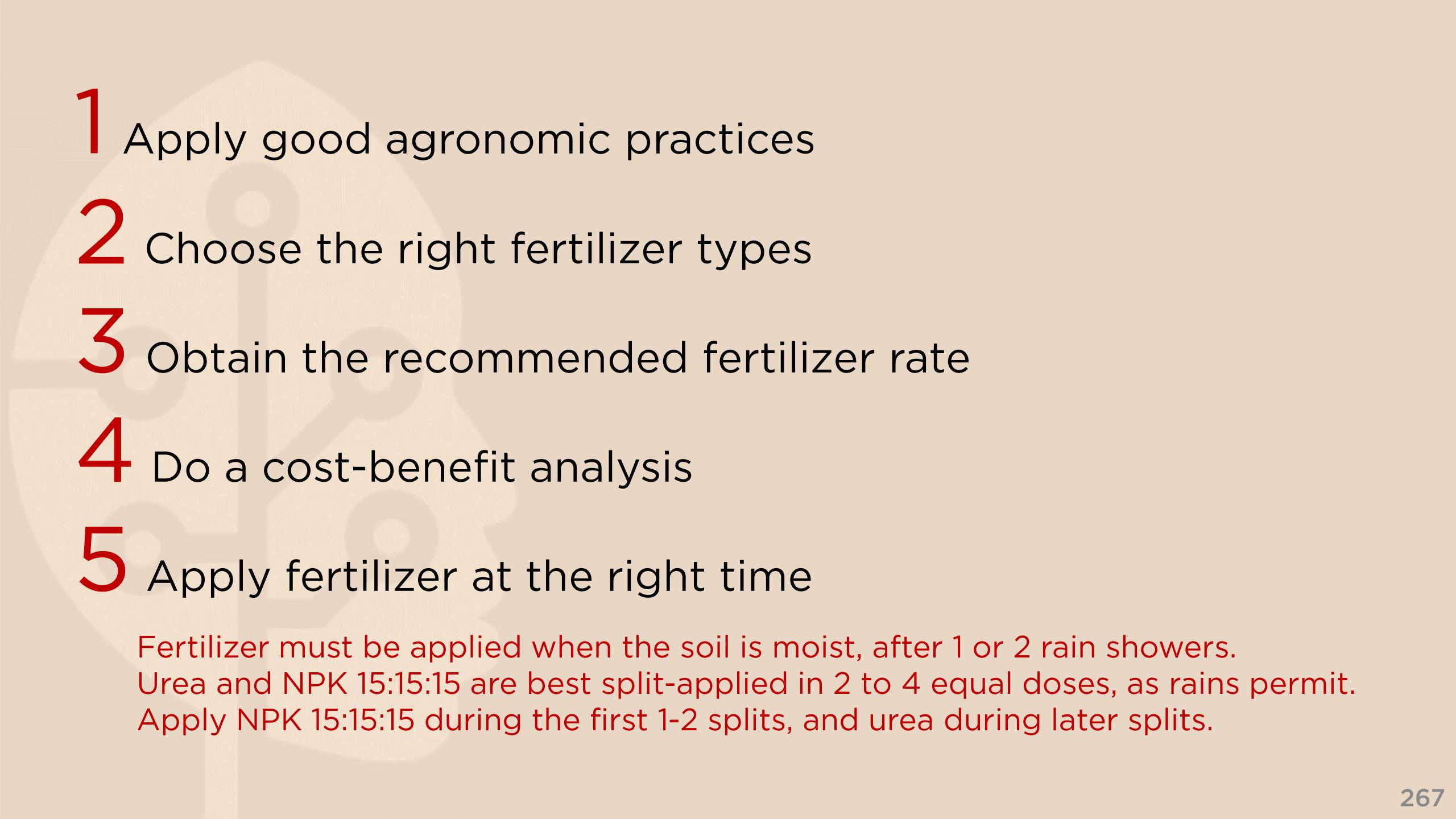
The recommended rate of fertilizer depends on the soil and weather in your area. We showed how you can obtain the recommended rate of NPK 15:15:15 and urea for your local government area, your planting month, and your current yield level.

- 
- 1 Apply good agronomic practices
 - 2 Choose the right fertilizer types
 - 3 Obtain the recommended fertilizer rate
 - 4 Do a cost-benefit analysis

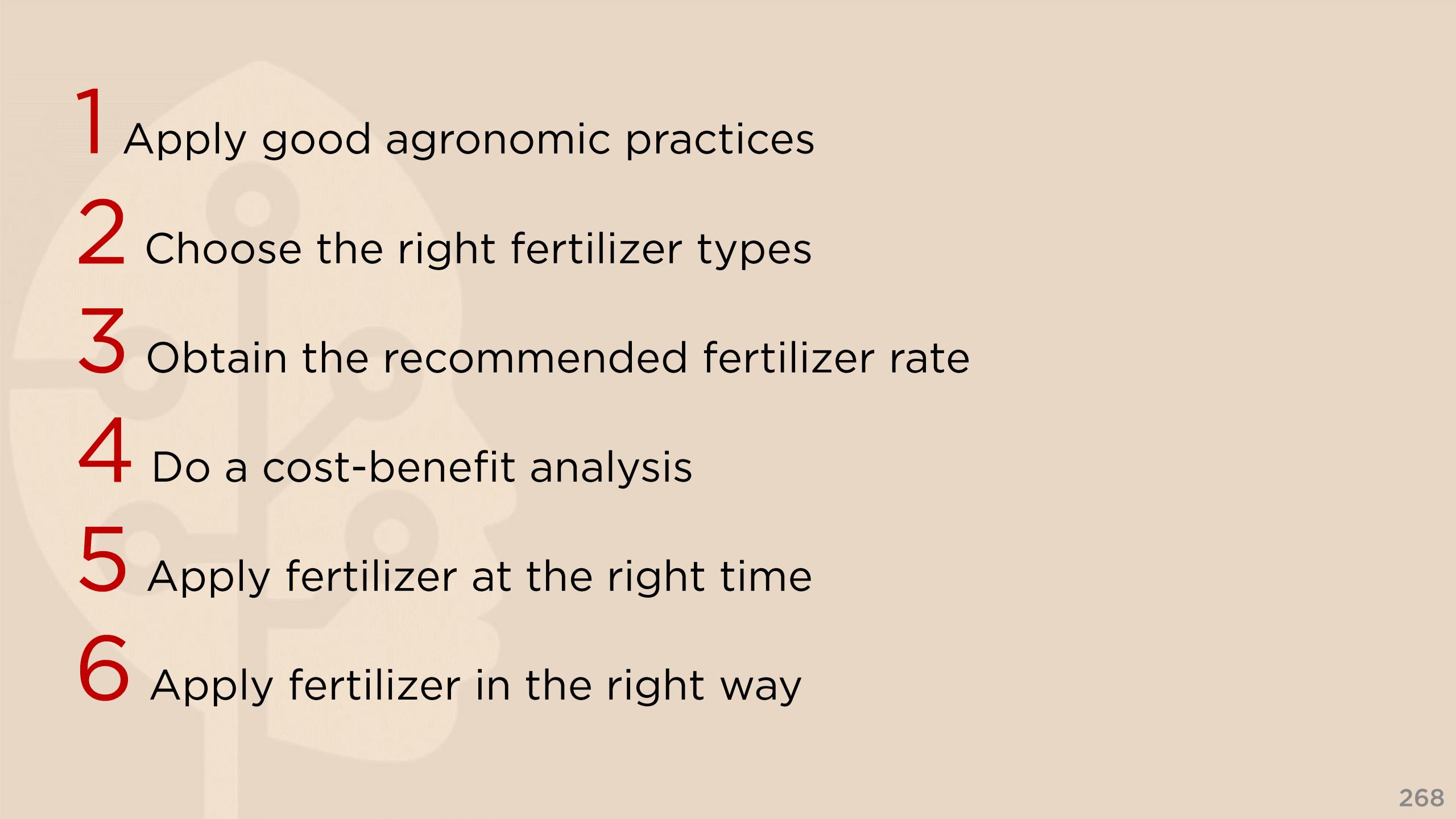
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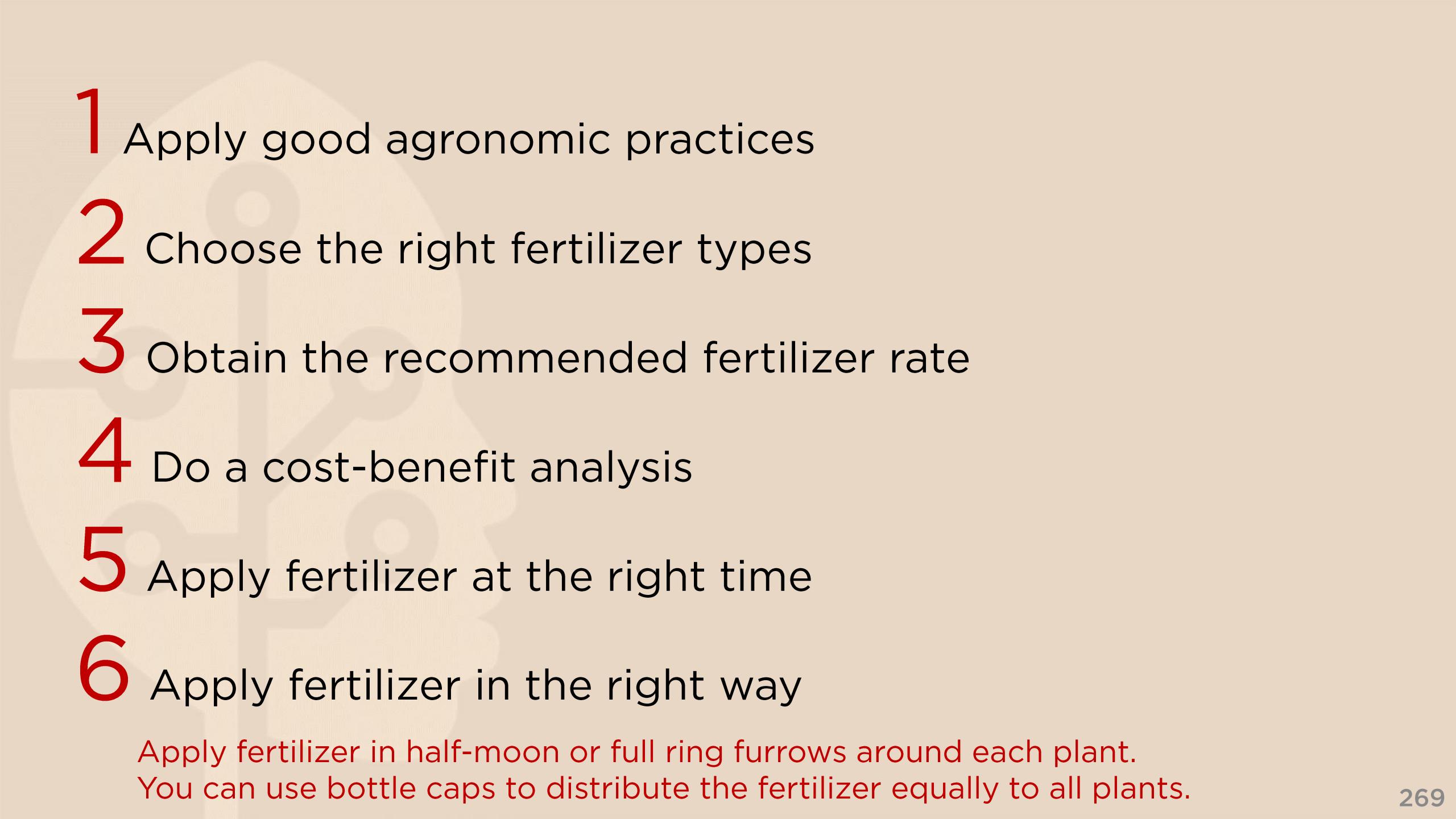
You must evaluate the profitability of fertilizer use before deciding to invest. Use your knowledge of how cassava performed in your field previously, the fertilizer price, and the expected cassava root price to calculate the expected extra profit.

- 
- 1 Apply good agronomic practices
 - 2 Choose the right fertilizer types
 - 3 Obtain the recommended fertilizer rate
 - 4 Do a cost-benefit analysis
 - 5 Apply fertilizer at the right time

- 
- A faint background watermark shows a circular diagram with three interlocking gears, symbolizing agriculture or machinery.
- 1 Apply good agronomic practices
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Fertilizer must be applied when the soil is moist, after 1 or 2 rain showers.
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 - 6 Apply fertilizer in the right way

- 
- A faint background watermark shows a hand holding a fertilizer bag and pouring fertilizer onto a soil surface where small plants are growing.
- 1 Apply good agronomic practices
 - 2 Choose the right fertilizer types
 - 3 Obtain the recommended fertilizer rate
 - 4 Do a cost-benefit analysis
 - 5 Apply fertilizer at the right time
 - 6 Apply fertilizer in the right way

Apply fertilizer in half-moon or full ring furrows around each plant.
You can use bottle caps to distribute the fertilizer equally to all plants.



You now know all about

Tailored fertilizer recommendations

and how to use our printable guides

in **6** easy steps

Thank you for watching!



AKILIMO

we know cassava