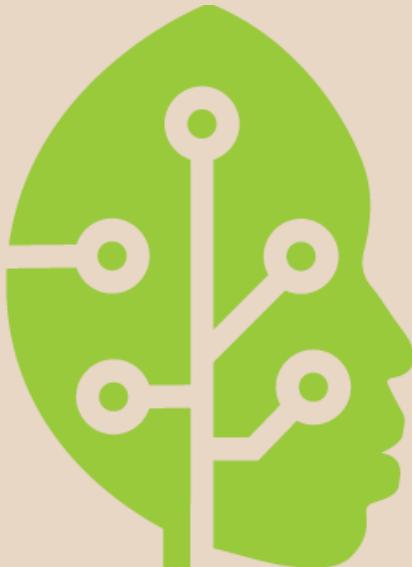


Hi there!



AKILIMO

we know cassava



You will learn all about

Acre
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

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

You will learn

1 The importance of good agronomic practices

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3 How to obtain the recommended fertilizer rate

4 How to evaluate if fertilizer use is profitable

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 text "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.

Illustrations show cassava root sizes corresponding to yield levels: LOW (small roots), NORMAL (medium roots), MEDIUM (large roots), HIGH (very large roots), and VERY HIGH (huge roots). Below each illustration is a yellow box indicating the yield range: <3 tonnes per acre for LOW, 3 - 6 tonnes per acre for NORMAL, 6 - 9 tonnes per acre for MEDIUM, 9 - 12 tonnes per acre for HIGH, and >12 tonnes per acre for VERY HIGH.

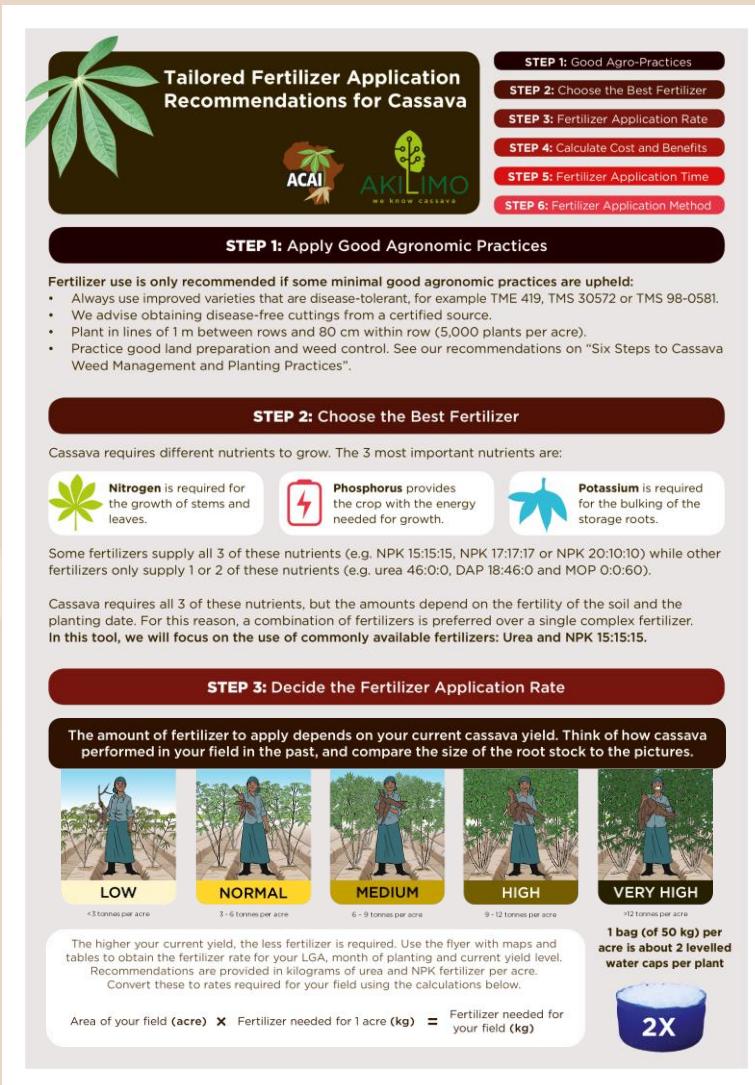
The higher your current yield, the less fertilizer is required. Use the flyer with maps and tables to obtain the fertilizer rate for your LGA, month of planting and current yield level. Recommendations are provided in kilograms of urea and NPK fertilizer per acre. Convert these to rates required for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

Area of your field (acre) \times Fertilizer needed for 1 acre (kg) = Fertilizer needed for your field (kg)

A blue bucket icon with the number "2X" indicates a double application rate.

You will use

AKILIMO guide



Tailored Fertilizer Application Recommendations for Cassava

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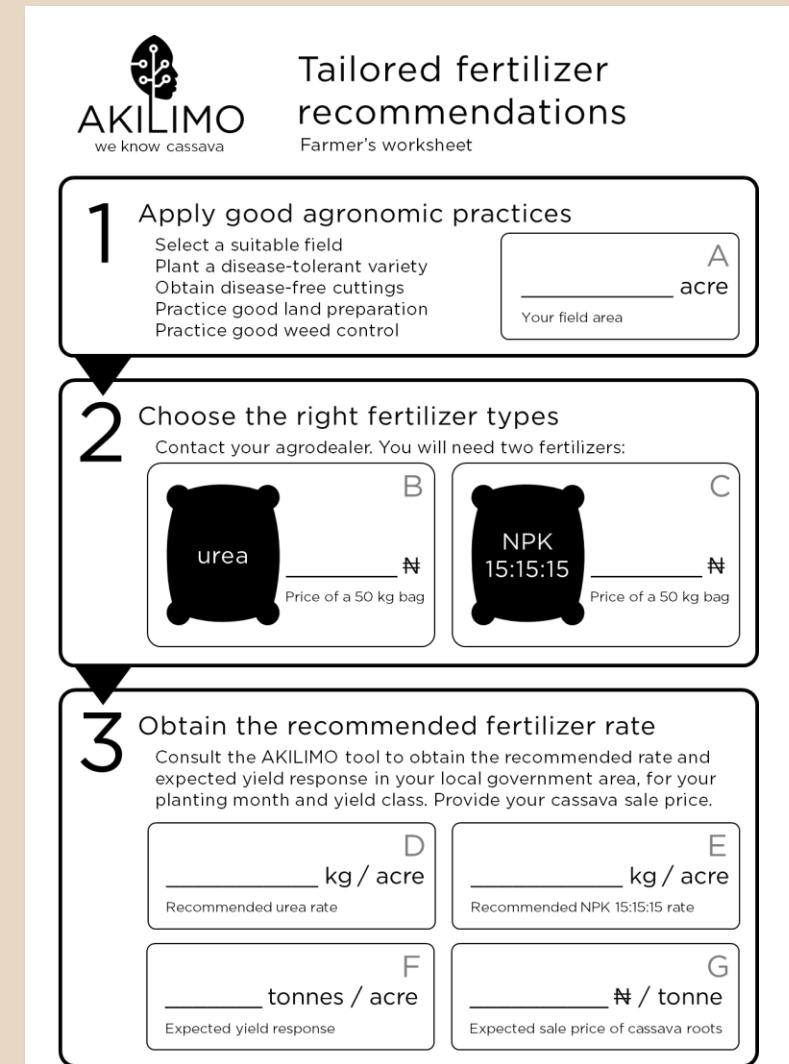
Yield Level	Root Stock Size
LOW	< 3 tonnes per acre
NORMAL	3 - 6 tonnes per acre
MEDIUM	6 - 9 tonnes per acre
HIGH	9 - 12 tonnes per acre
VERY HIGH	> 12 tonnes per acre

1 bag (of 50 kg) per acre is about 2 levelled water caps per plant

2X

Area of your field (acre) \times Fertilizer needed for 1 acre (kg) = Fertilizer needed for your field (kg)

Farmer's worksheet



AKILIMO
we know cassava

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 acre
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 / acre
Recommended urea rate

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

F tonnes / acre
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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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.

Yield Level	Approximate Yield (tonnes per acre)
LOW	< 3 tonnes per acre
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HIGH	9 - 12 tonnes per acre
VERY HIGH	> 12 tonnes per acre

1 bag (of 50 kg) per acre is about 2 levelled water caps per plant

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Area of your field (acre) \times Fertilizer needed for 1 acre (kg) = Fertilizer needed for your field (kg)

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 _____ acre
Your field area

2 Choose the right fertilizer types

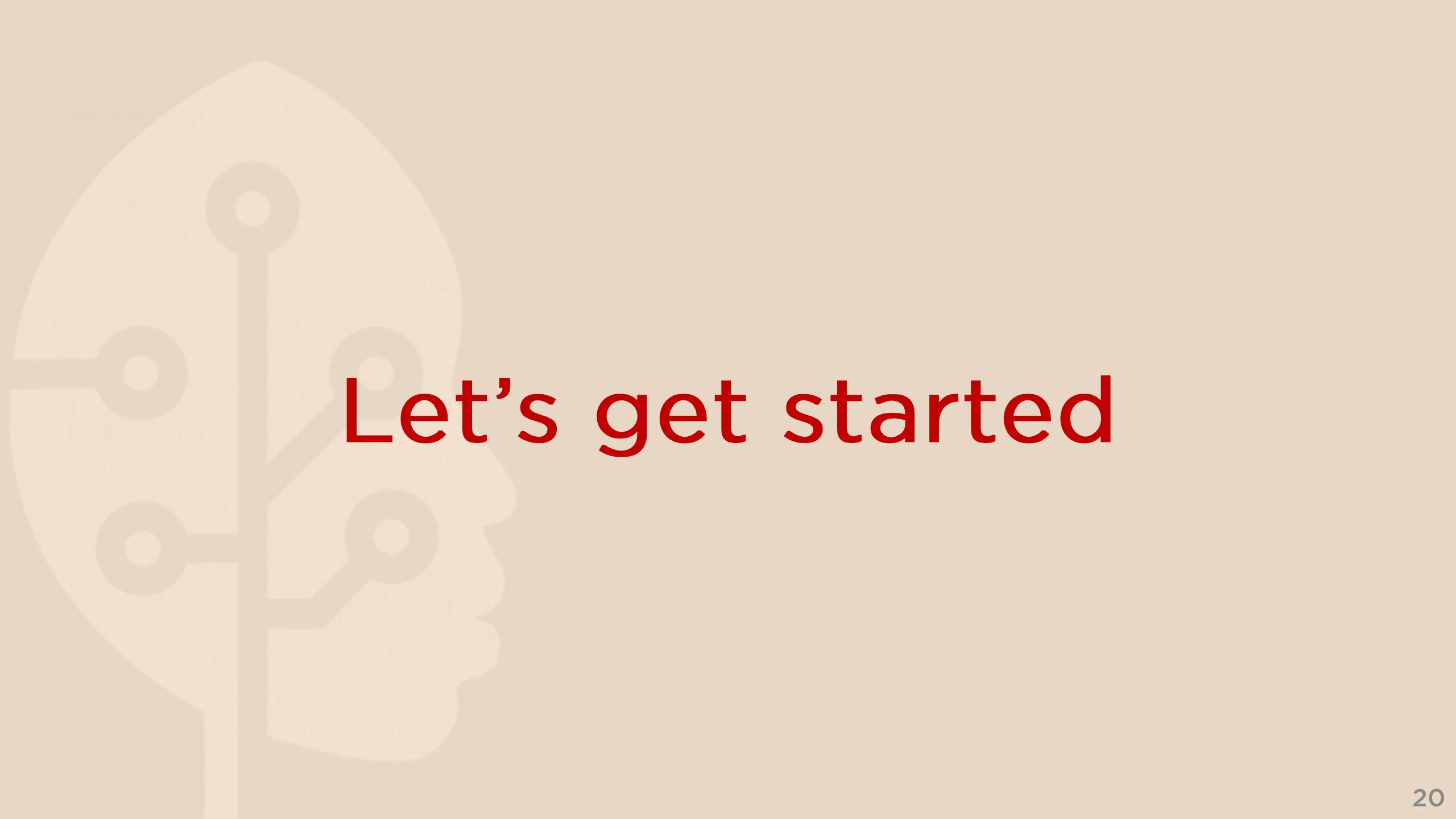
Contact your agrodealer. You will need two fertilizers:

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 / acre Recommended urea rate	E kg / acre Recommended NPK 15:15:15 rate
F tonnes / acre Expected yield response	G / tonne Expected sale price of cassava roots



Let's get started

1 Apply good agronomic practices

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- Practice good land preparation and weed control.
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- Always use improved varieties that are disease-tolerant.

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See our video on “Six Steps to Cassava Weed Management and Planting practices”.
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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 (5,000 plants per acre).
Space branching varieties at 1 m within row (4,000 plants per acre).

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
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A
_____ acre
Your field area

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0.5

A

Your field area

2 Choose the right fertilizer types

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

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Nitrogen is required
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N

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N

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P

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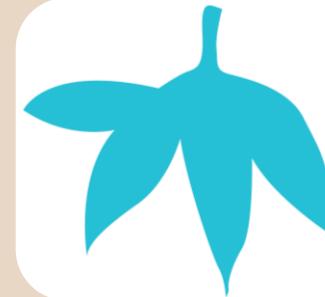
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Potassium is used for the bulking of the storage roots.

N

P

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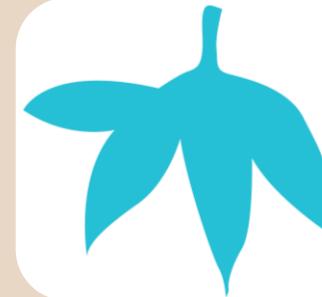
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P

K

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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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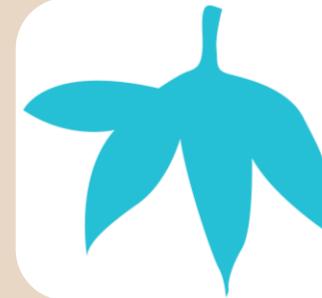
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Other fertilizers only supply 1 or 2 of these nutrients:

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

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Nitrogen

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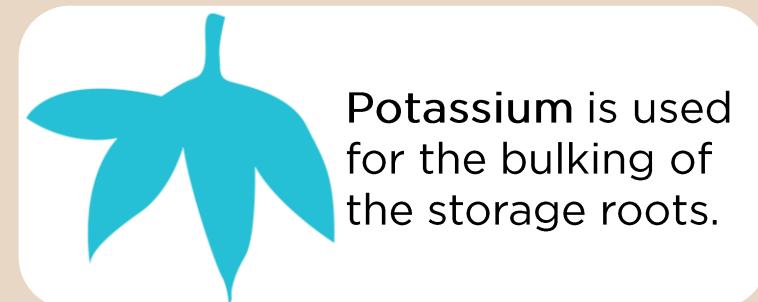
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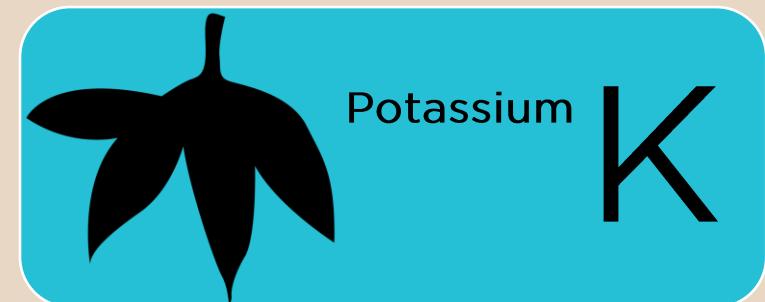
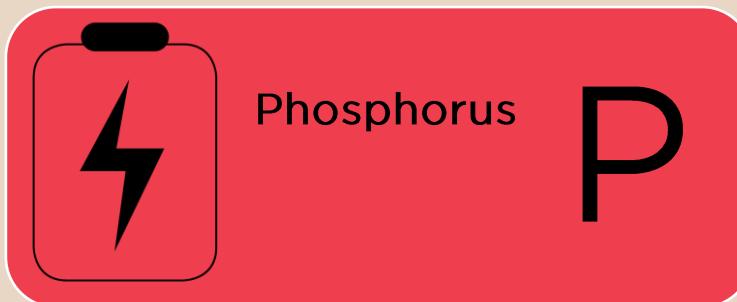
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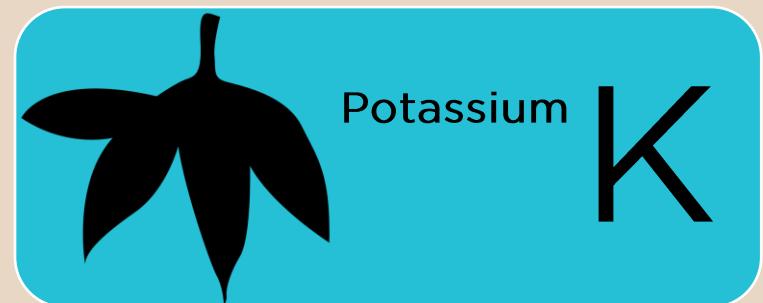
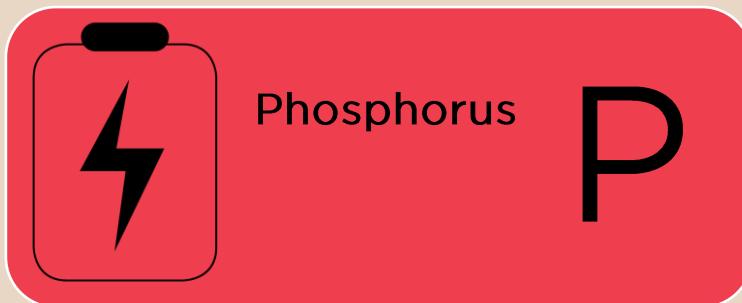
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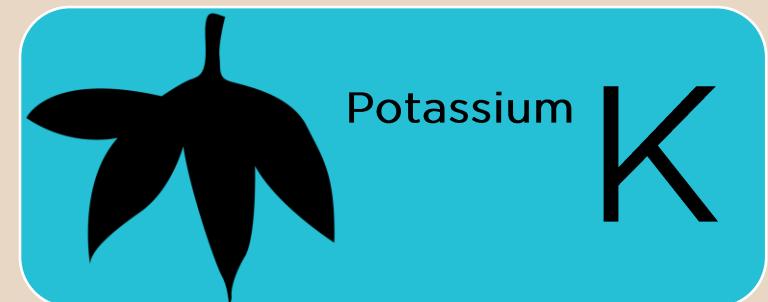
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In this video, we will focus on a combination of 2 commonly available fertilizers:

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

2 Choose the right fertilizer types

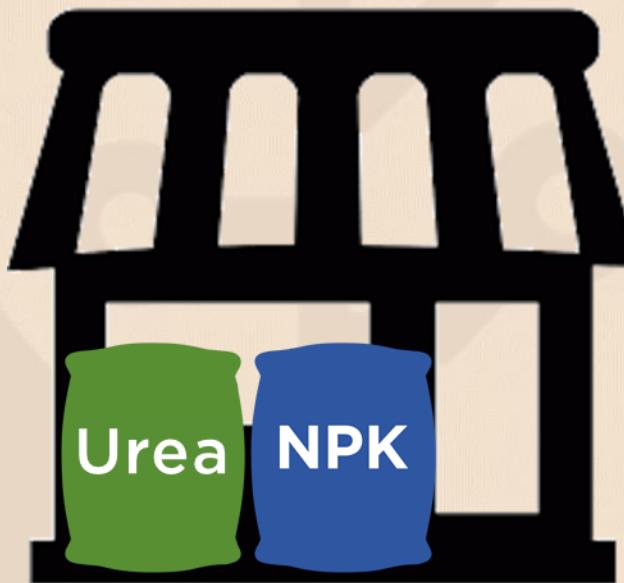
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Ask your local agrodealer for the prices of urea and NPK 15:15:15.

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The worksheet collects price information for these two fertilizers:

2 Choose the right fertilizer types

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B
_____ #
Price of a 50 kg bag



C
_____ #
Price of a 50 kg bag

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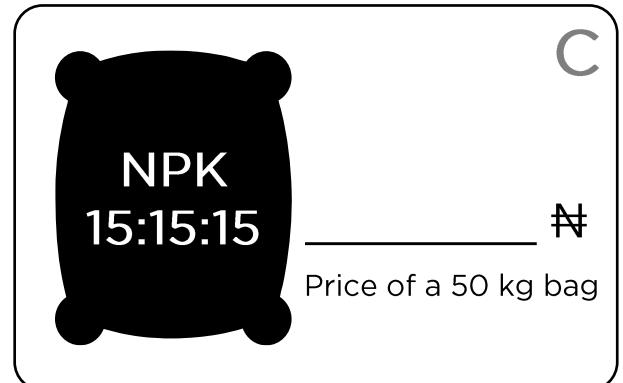
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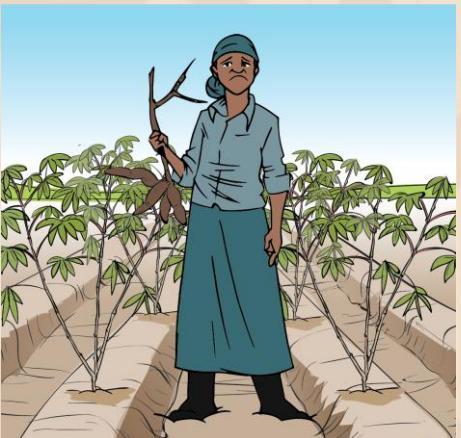
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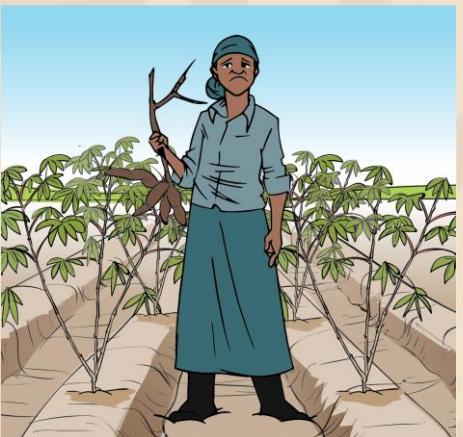
LOW

<3 tonnes per acre

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<3 tonnes per acre



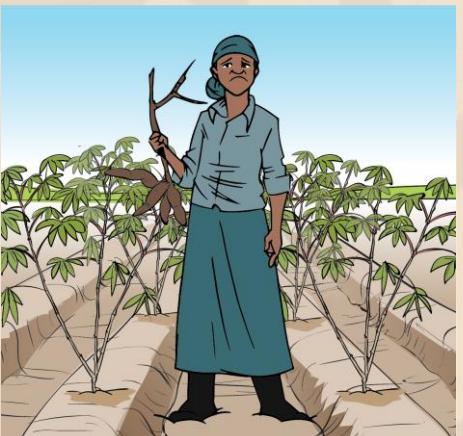
NORMAL

3 - 6 tonnes per acre

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LOW



NORMAL



MEDIUM

<3 tonnes per acre

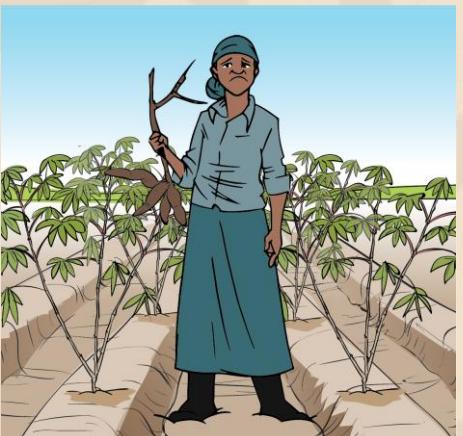
3 - 6 tonnes per acre

6 - 9 tonnes per acre

3 Obtain the recommended fertilizer rate

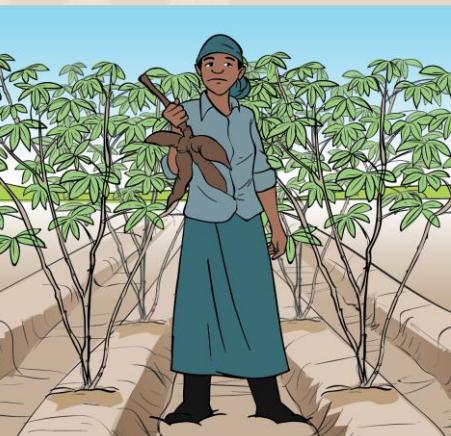
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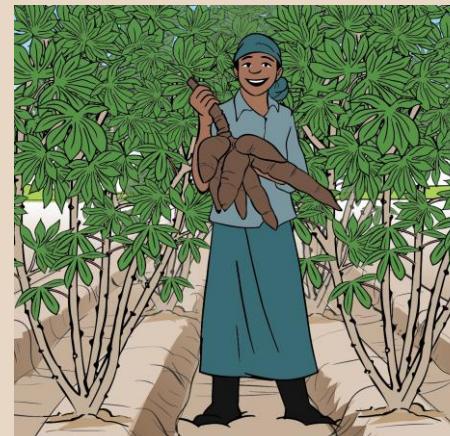
NORMAL

3 - 6 tonnes per acre



MEDIUM

6 - 9 tonnes per acre



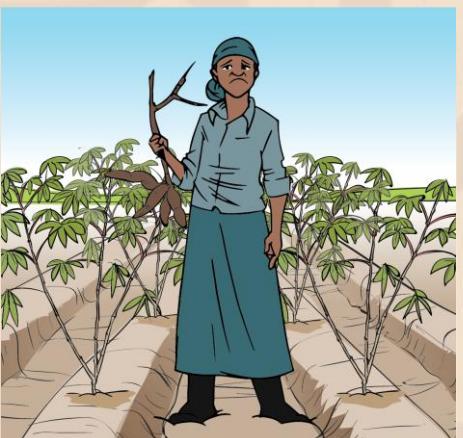
HIGH

9 - 12 tonnes per acre

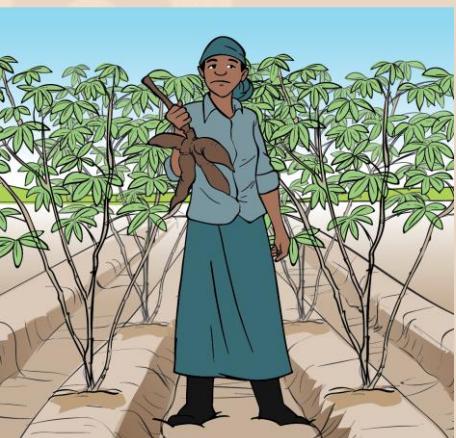
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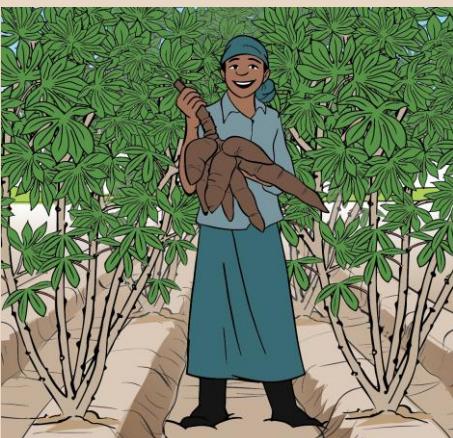
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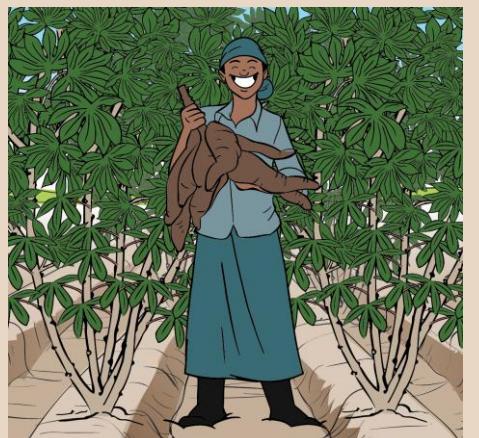
NORMAL



MEDIUM



HIGH



VERY HIGH

<3 tonnes per acre

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>12 tonnes per acre

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NORMAL

7.5 - 15 tonnes per hectare

For example

A good crop stand is 4,000 plants per acre.
If every plant yields 1 kg of roots, then your
yield will be:

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.



NORMAL

7.5 - 15 tonnes per hectare

For example

A good crop stand is 4,000 plants per acre.
If every plant yields 1 kg of roots, then your
yield will be:

$$4,000 \times 1\text{kg} = 4 + / \text{acre}$$

3 Obtain the recommended fertilizer rate

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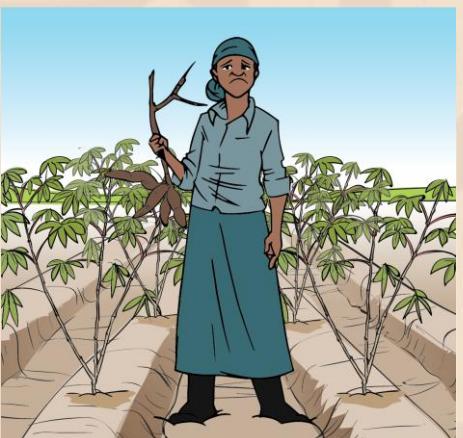
$$4,000 \times 1\text{kg} = 4 + / \text{acre}$$

This is a typical yield for smallholder cassava growers.

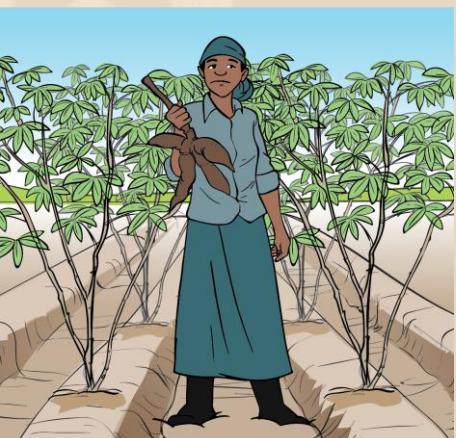
3 Obtain the recommended fertilizer rate

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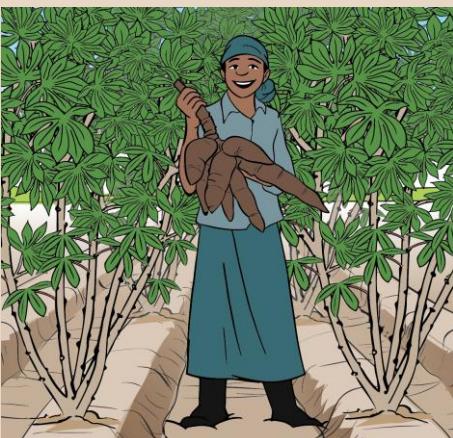
LOW



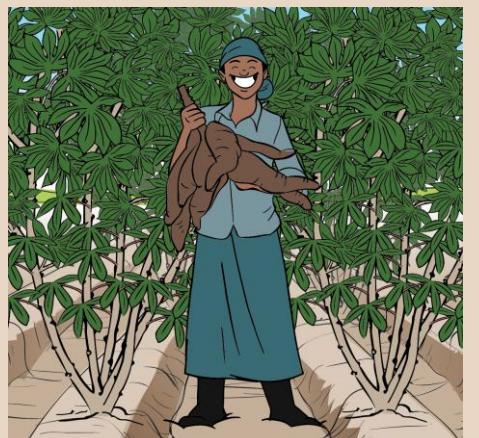
NORMAL



MEDIUM



HIGH



VERY HIGH

<3 tonnes per acre

3 - 6 tonnes per acre

6 - 9 tonnes per acre

9 - 12 tonnes per acre

>12 tonnes per acre

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.

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.



Recommended
Fertilizer Rates

www.akilimo.org

BENUE CROSSRIVER
(or your state)

3 Obtain the recommended fertilizer rate

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Recommended
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BENUE CROSSRIVER
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The recommended fertilizer rate depends on:

Yield class



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Recommended
Fertilizer Rates

www.akilimo.org

BENUE CROSSRIVER
(or your state)

The recommended fertilizer rate depends on:

Yield class



LOW
NORMAL
MEDIUM
HIGH
VERY HIGH

LGA



3 Obtain the recommended fertilizer rate

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Recommended
Fertilizer Rates

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BENUE CROSSRIVER
(or your state)

The recommended fertilizer rate depends on:

Yield class



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.

What is your State?

Benue

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?

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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

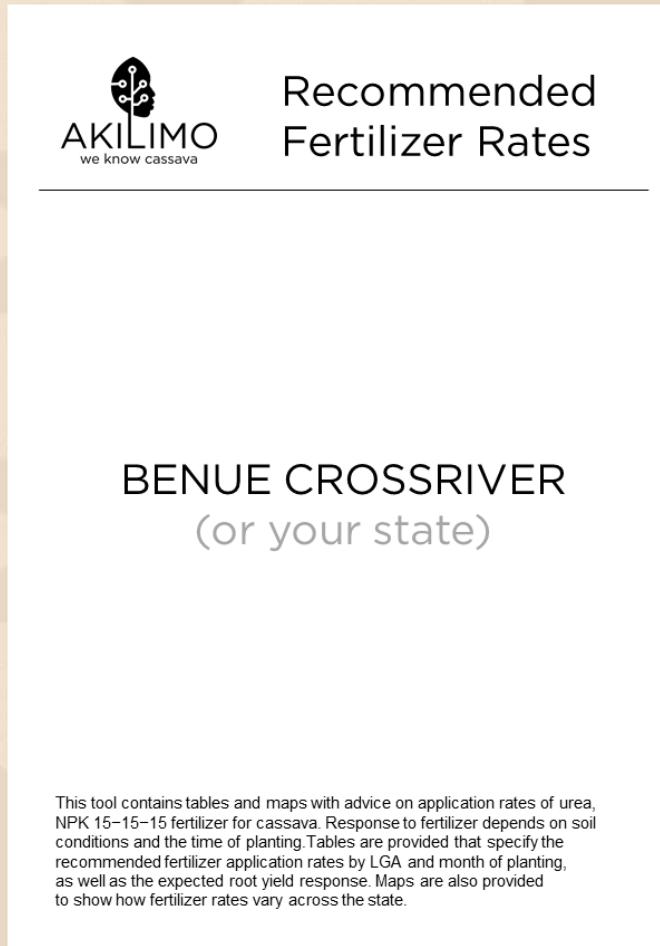
What yield do you typically obtain?

(without fertilizer)



3 Obtain the recommended fertilizer rate

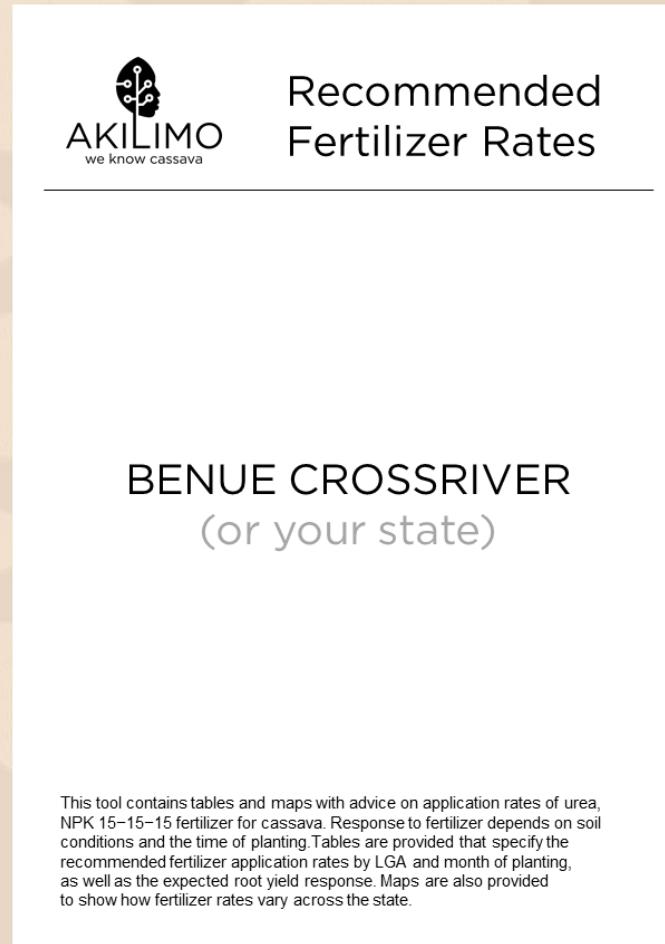
Let's look at the flyer...



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...

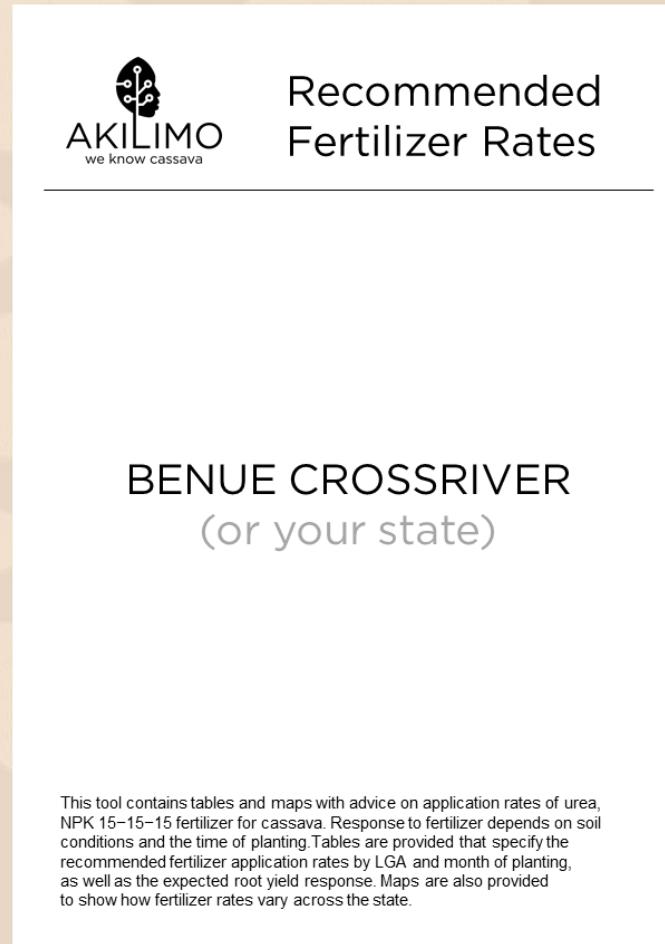


AKILIMO provides a flyer that contains the recommended fertilizer rates for your state.

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...



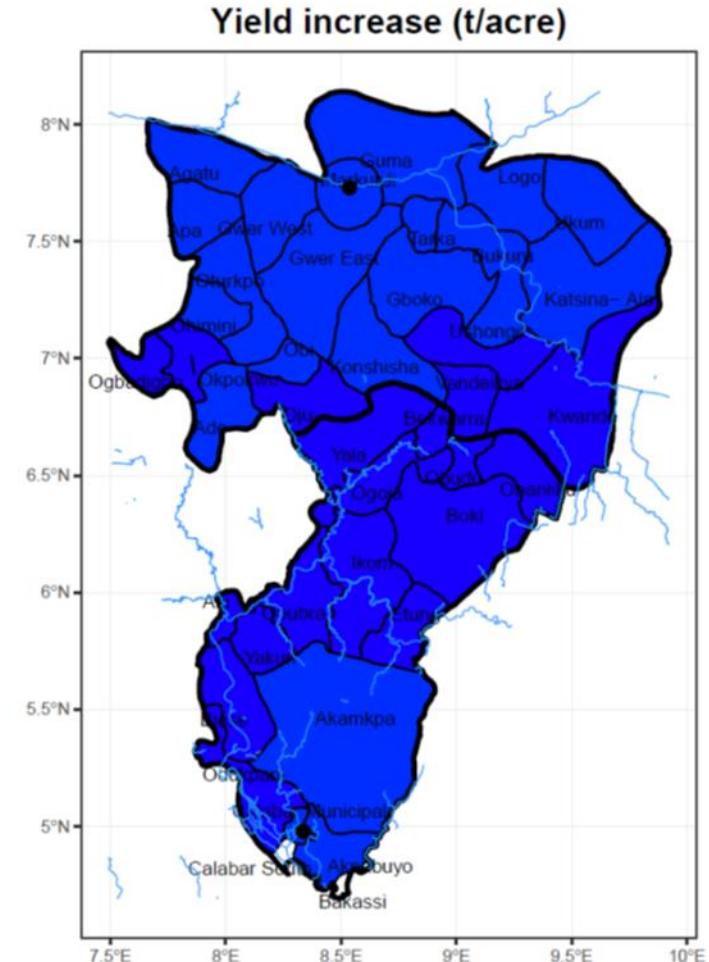
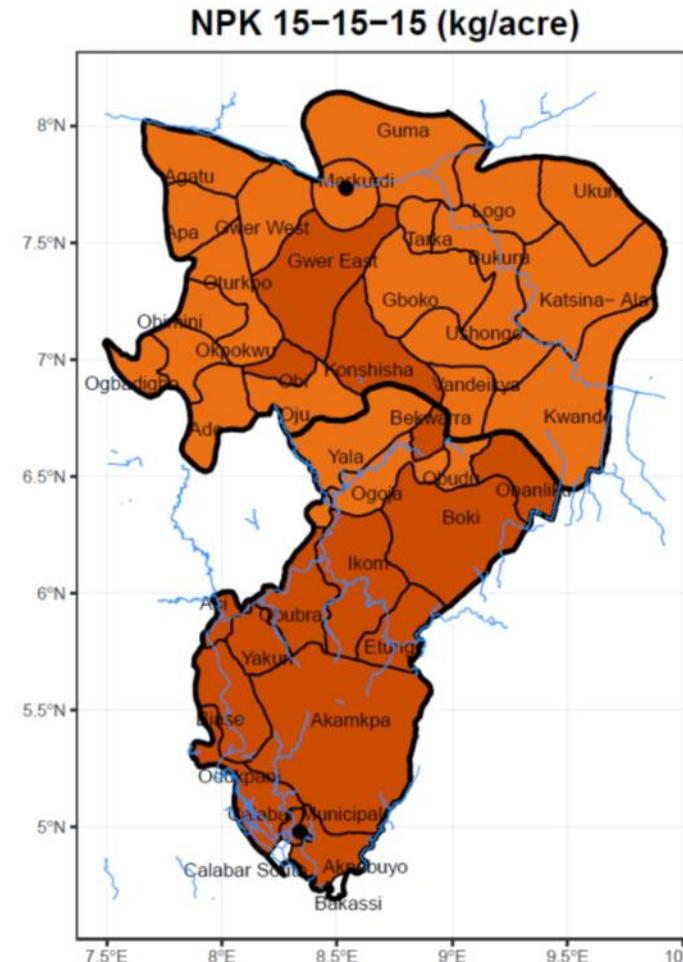
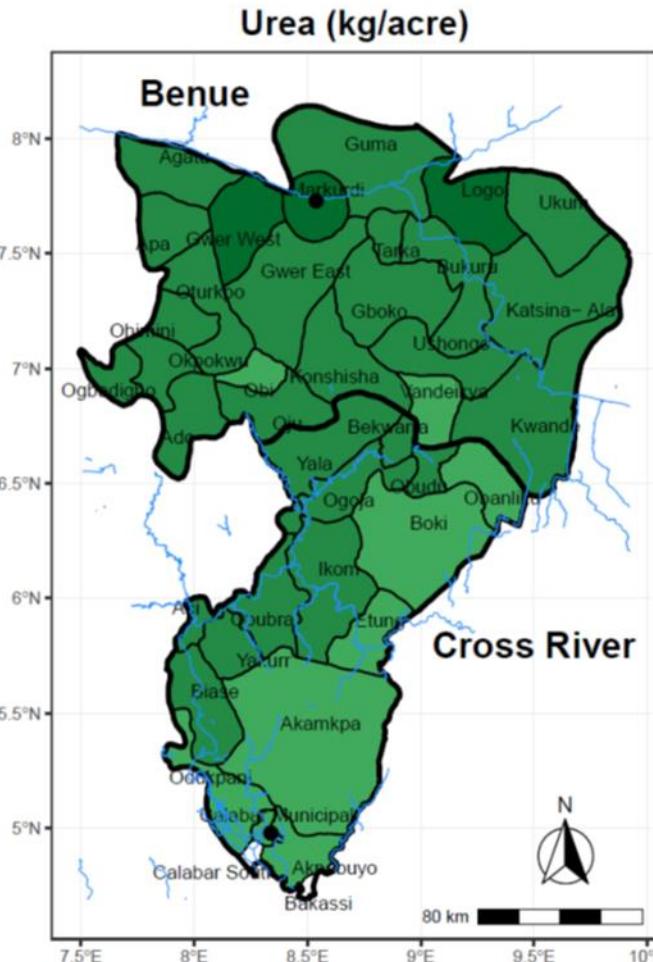
AKILIMO provides a flyer that contains the recommended fertilizer rates for your state.

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.

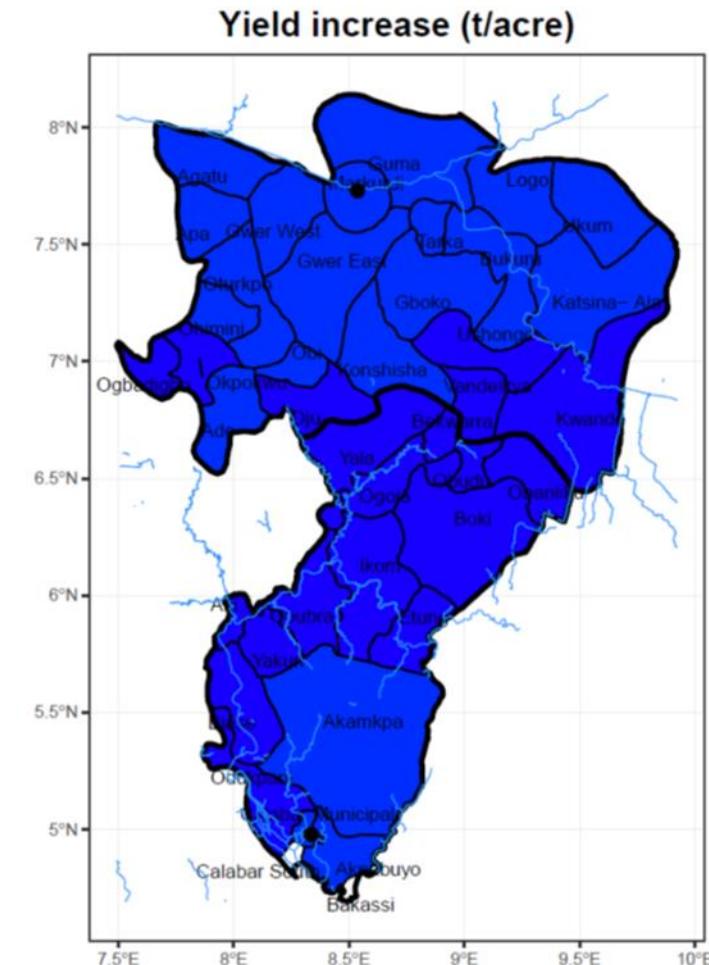
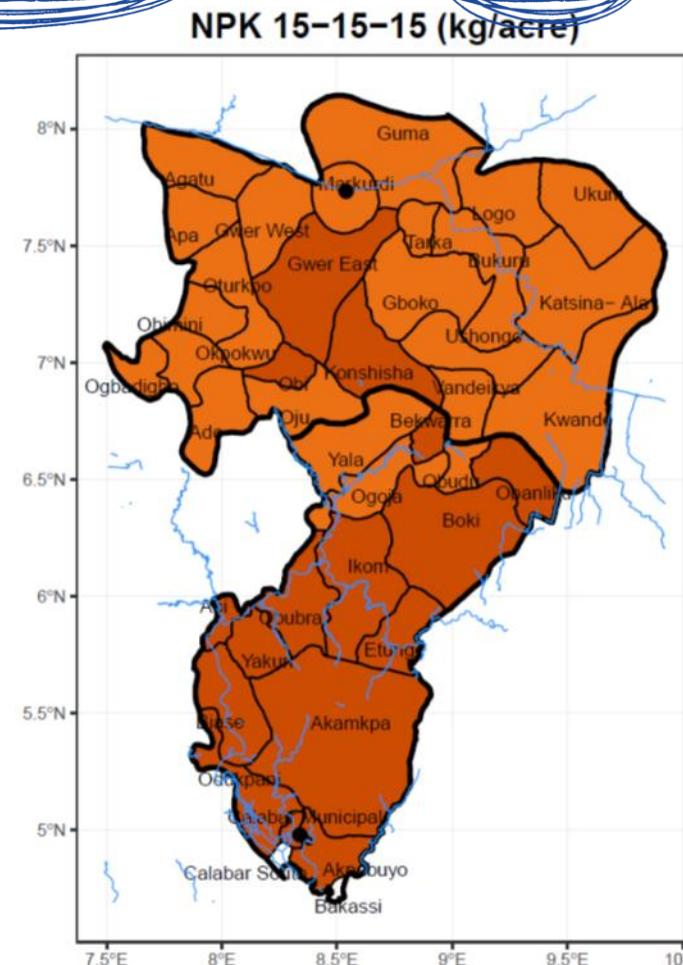
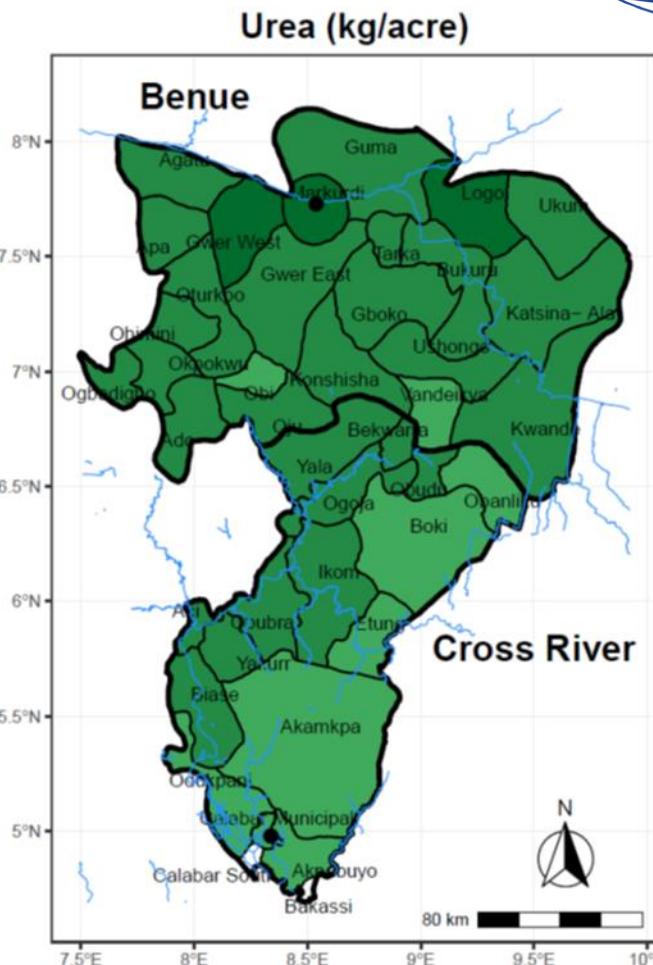
3 Obtain the recommended fertilizer rate

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



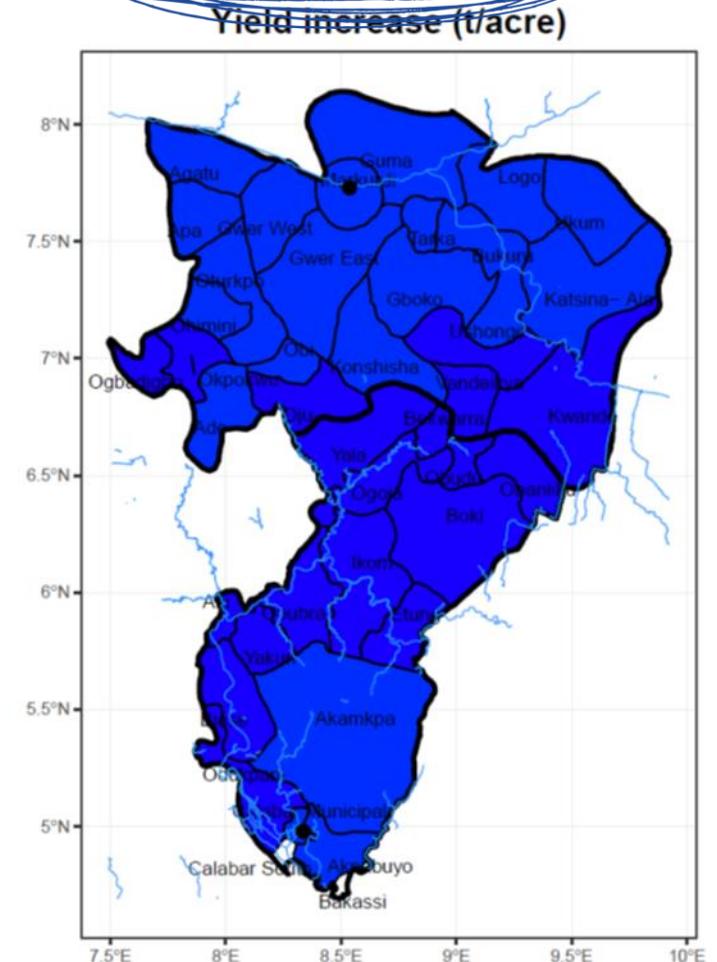
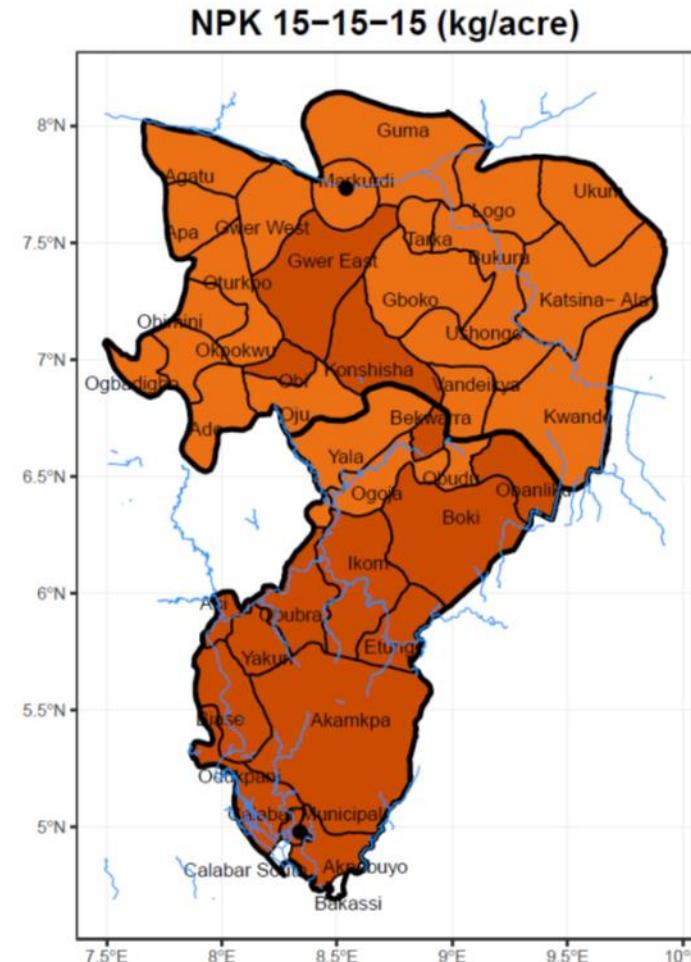
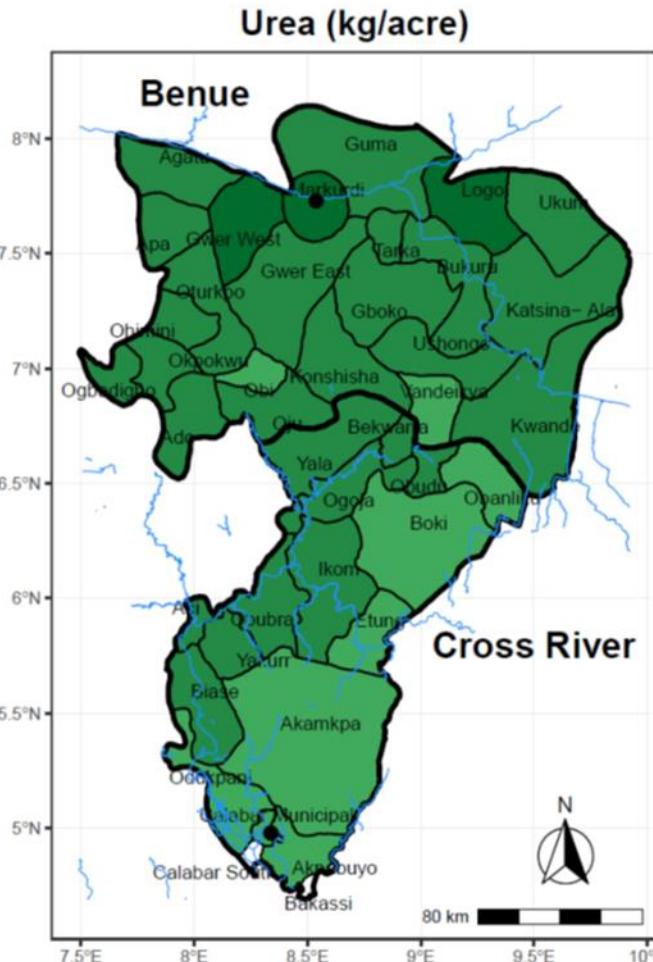
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Benue state ; planting in May ; yield class = **NORMAL**



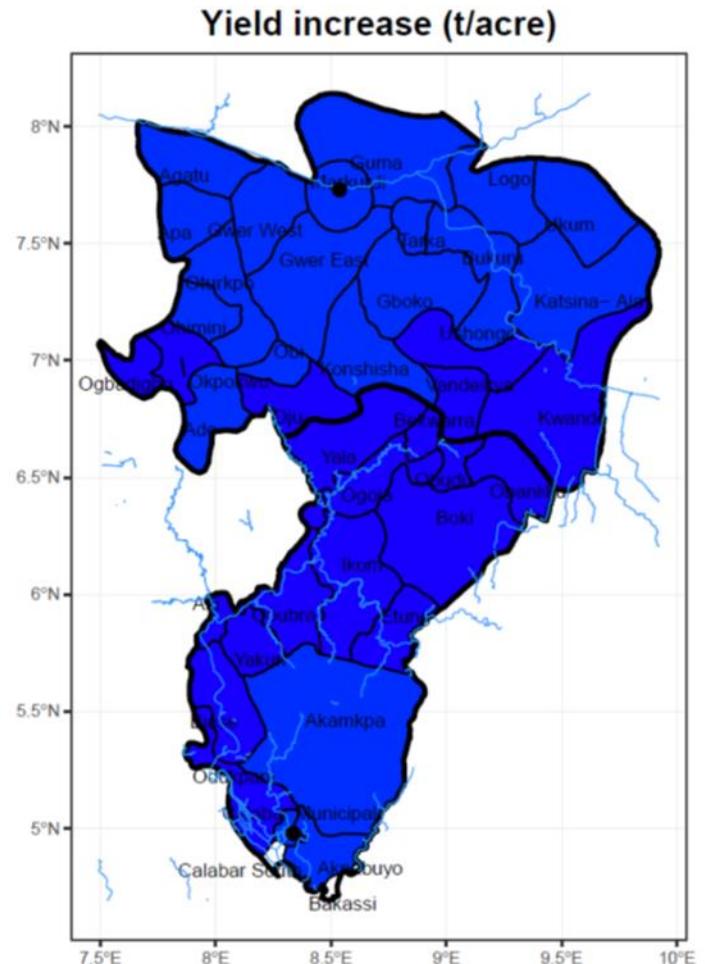
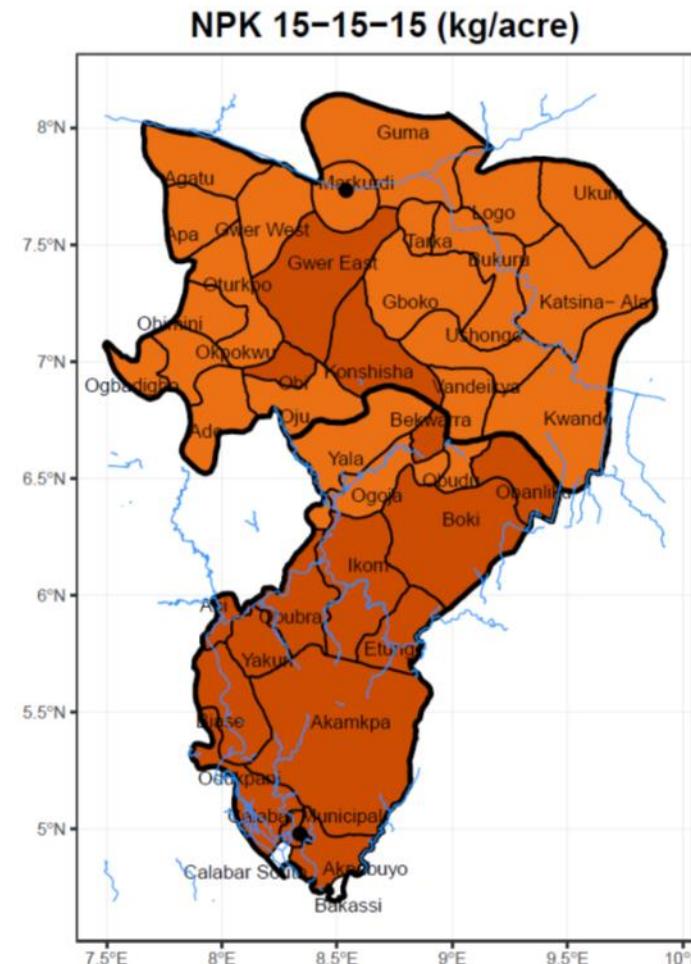
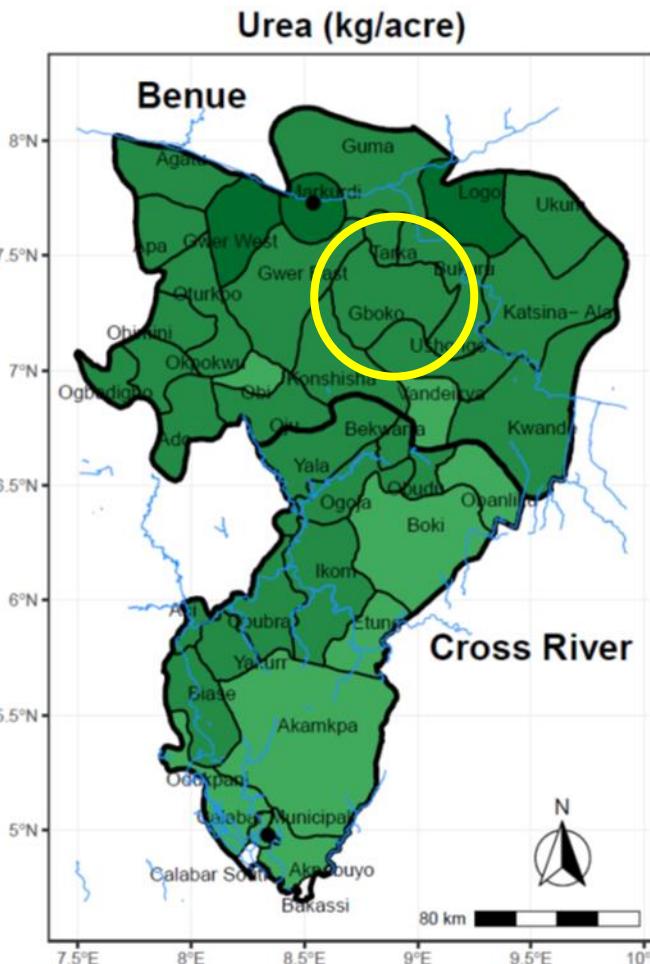
3 Obtain the recommended fertilizer rate

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



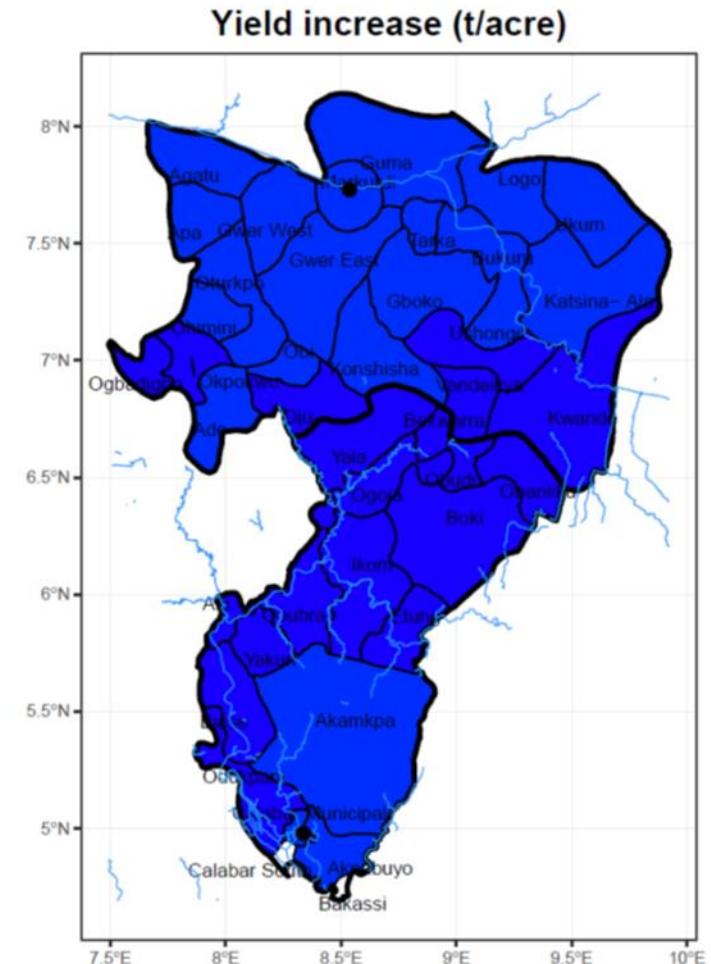
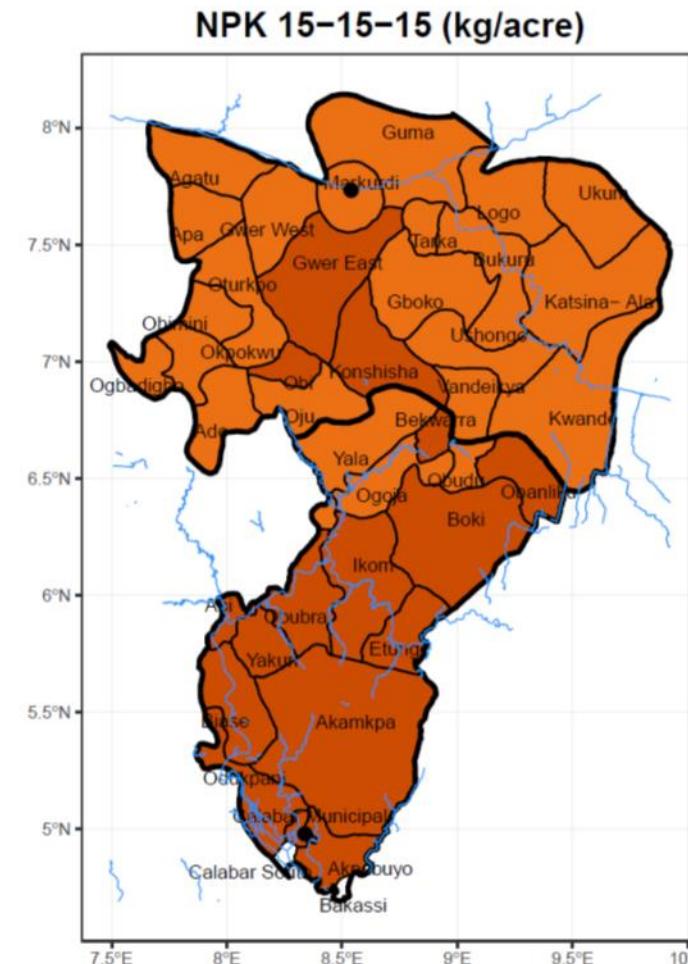
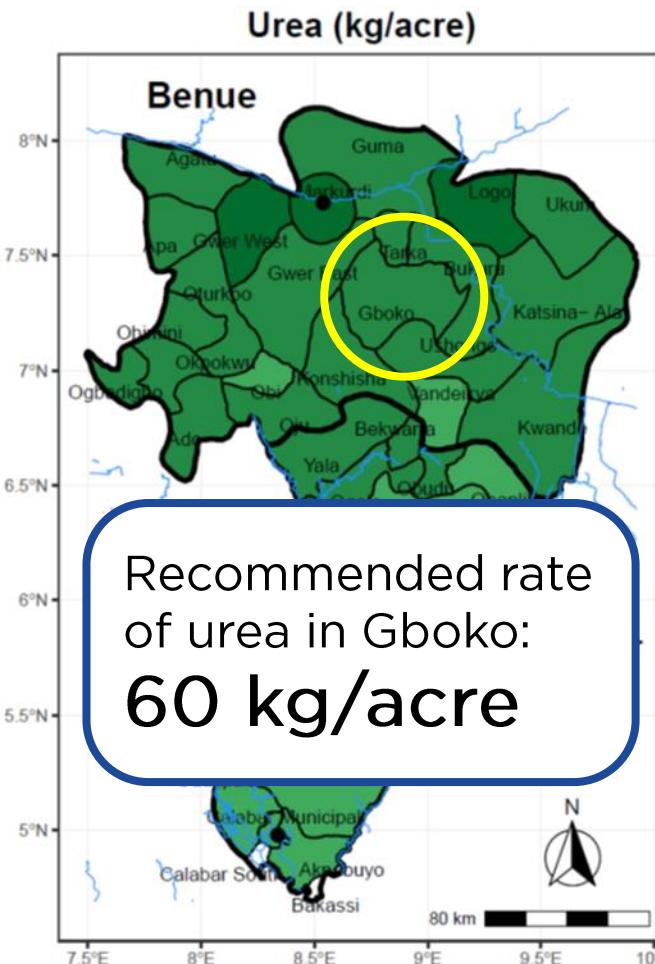
3 Obtain the recommended fertilizer rate

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



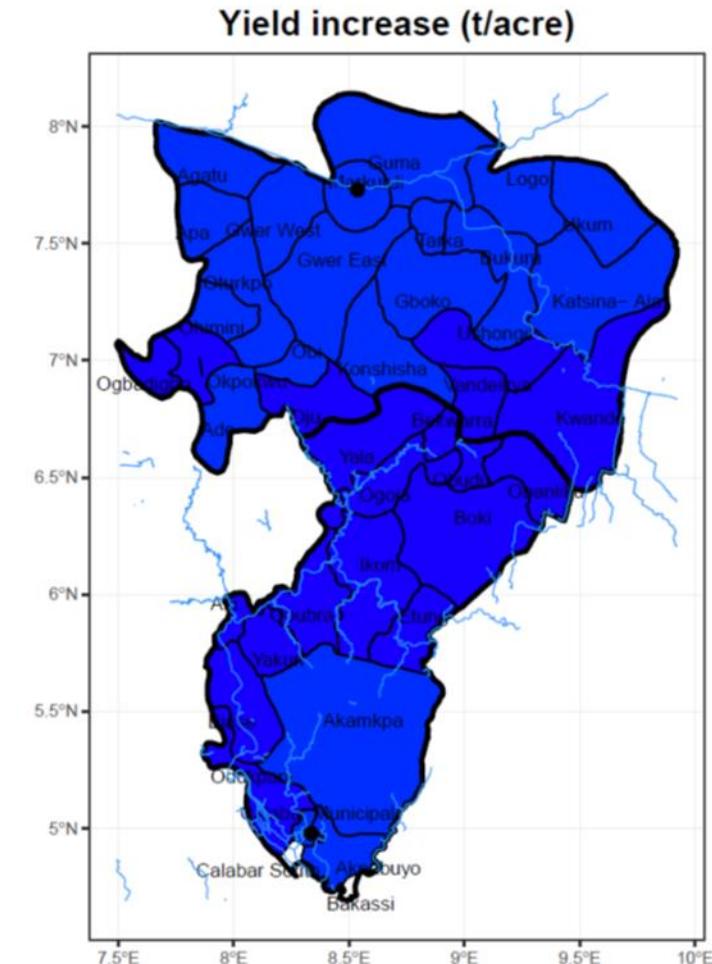
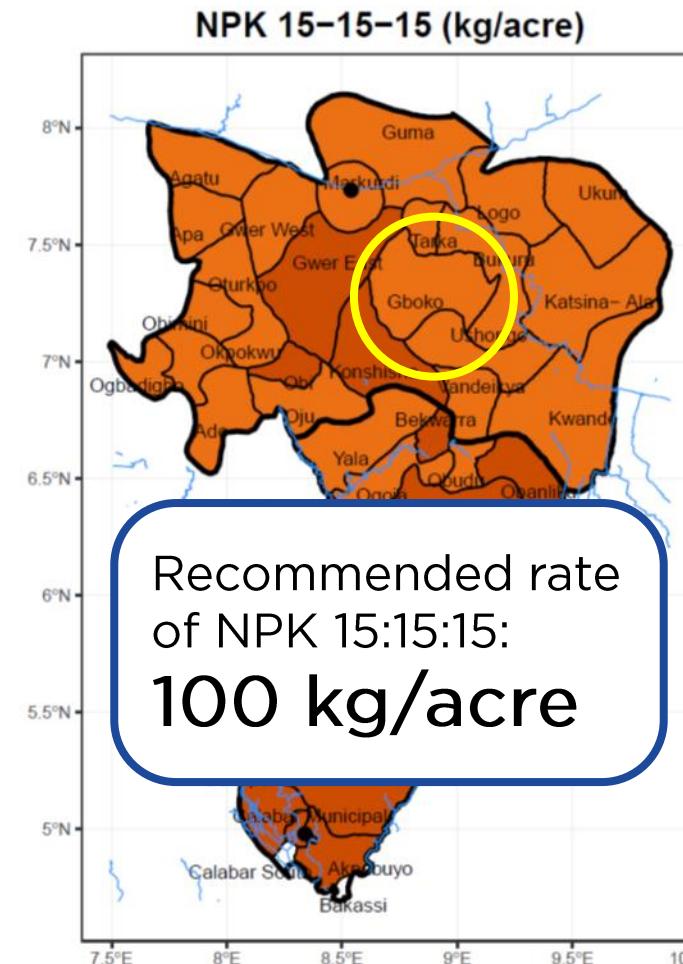
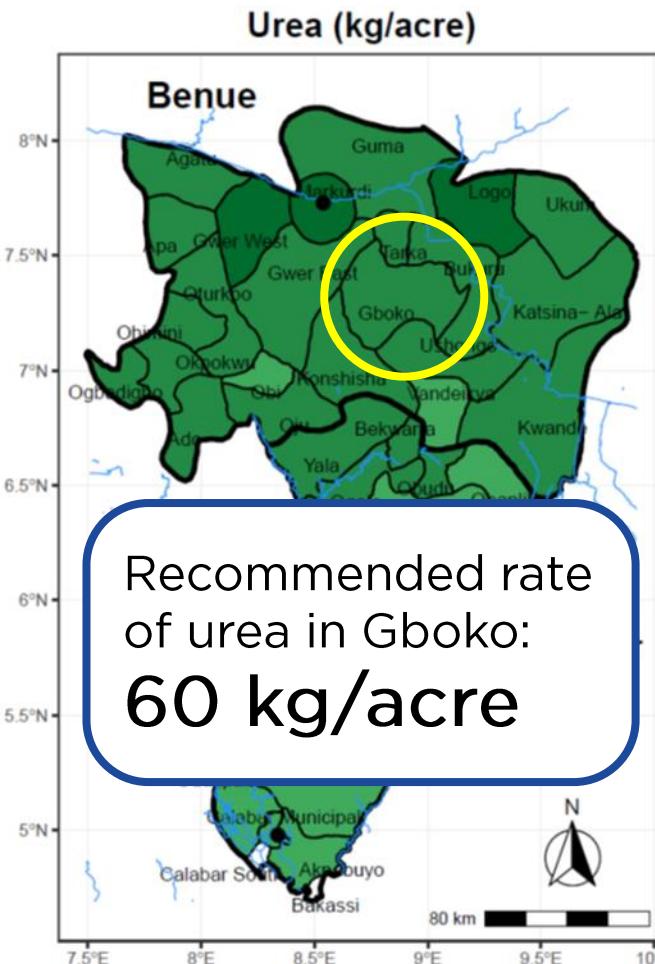
3 Obtain the recommended fertilizer rate

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



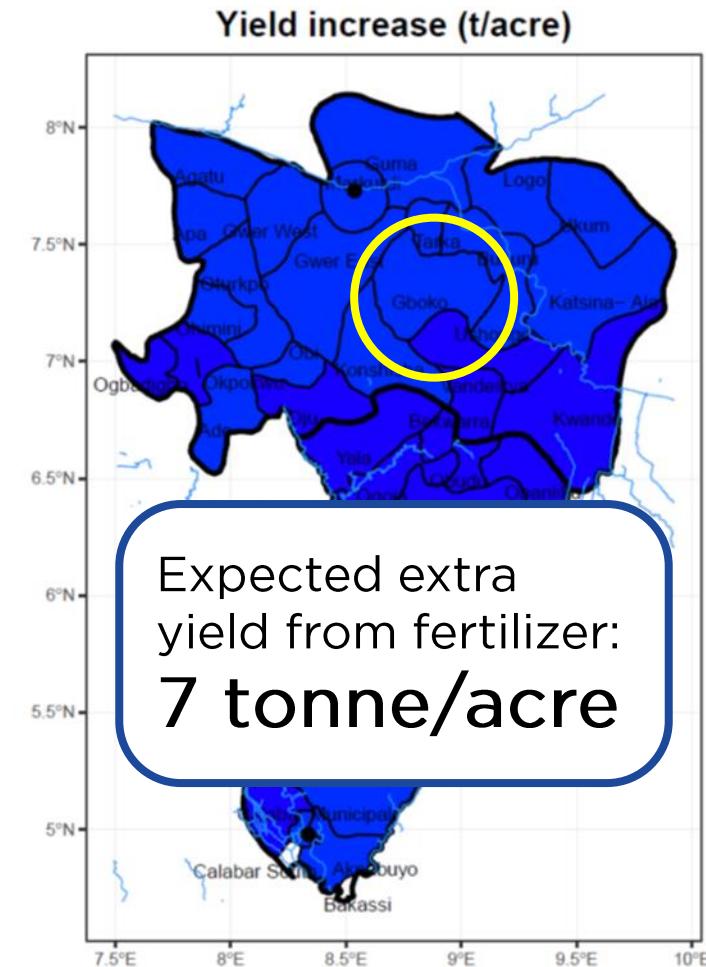
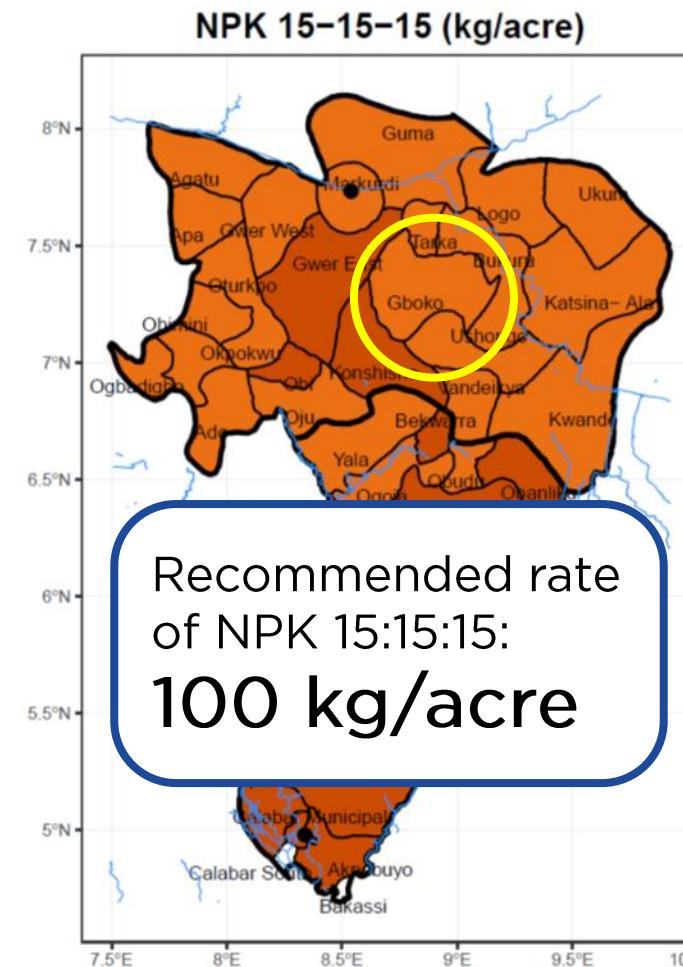
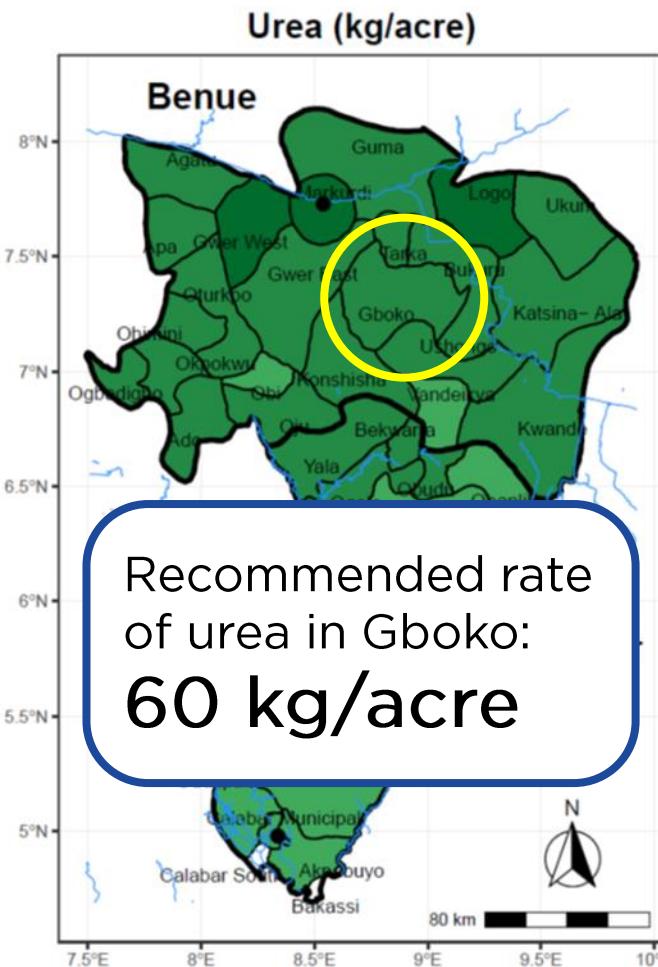
3 Obtain the recommended fertilizer rate

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



3 Obtain the recommended fertilizer rate

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



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/acre)	NPK 15-15-15 (kg/acre)	Yield increase (t/acre)
Ado	Benue	60	100	7
Agatu	Benue	60	100	7
Apa	Benue	60	100	7
Bukuru	Benue	60	100	7
Gboko	Benue	60	100	7
Guma	Benue	60	100	7
Gwer East	Benue	60	120	7
Gwer West	Benue	70	100	7
Katsina-Ala	Benue	60	100	7
Konshisha	Benue	60	120	7
Kwande	Benue	60	100	6

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Gboko	Benue	60	100	7
Guma	Benue	60	100	7
Gwer East	Benue	60	120	7
K...
K...
Kwande	Benue	60	100	6

Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

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 / acre

Recommended urea rate

E

_____ kg / acre

Recommended NPK 15:15:15 rate

F

_____ tonnes / acre

Expected yield response

G

_____ ₦ / tonne

Expected sale price of cassava roots

Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

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F

tonnes / acre

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₦ / tonne

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of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

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Obtain the recommended fertilizer rate

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60 kg / acre

Recommended urea rate

100 kg / acre

Recommended NPK 15:15:15 rate

 tonnes / acre

Expected yield response

F

E

G

 ₦ / tonne

Expected sale price of cassava roots

Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

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.

60 kg / acre
D

Recommended urea rate

100 kg / acre
E

Recommended NPK 15:15:15 rate

7 tonnes / acre
F

Expected yield response

 ₦ / tonne
G

Expected sale price of cassava roots

Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

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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.

60 kg / acre
D

Recommended urea rate

100 kg / acre
E

Recommended NPK 15:15:15 rate

7 tonnes / acre
F

Expected yield response

₦ / tonne
G

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:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

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.

60 kg / acre
D

Recommended urea rate

100 kg / acre
E

Recommended NPK 15:15:15 rate

7 tonnes / acre
F

Expected yield response

17,000 ₦ / tonne
G

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:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

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

Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

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

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

Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

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

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 **0.5** acre.

Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

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

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 **0.5** acre.

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

Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

Let's see how this is done in our example for a field of **0.5** acre.

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

Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

Let's see how this is done in our example for a field of **0.5** acre.

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

Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

Let's see how this is done in our example for a field of **0.5** acre.

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

$$0.5 \times 60 = 30 \text{ kg of urea}$$



Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

Let's see how this is done in our example for a field of **0.5** acre.

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

$$0.5 \times 60 = 30 \text{ kg of urea}$$



Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

Let's see how this is done in our example for a field of **0.5** acre.

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

$$0.5 \times 60 = 30 \text{ kg of urea}$$
$$0.5 \times 100 = 50 \text{ kg of NPK 15:15:15}$$



Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

Let's see how this is done in our example for a field of **0.5** acre.

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

$$0.5 \times 60 = 30 \text{ kg of urea}$$

$$0.5 \times 100 = 50 \text{ kg of NPK 15:15:15}$$



Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

Let's see how this is done in our example for a field of **0.5** acre.

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

$$0.5 \times 60 = 30 \text{ kg of urea}$$

$$0.5 \times 100 = 50 \text{ kg of NPK 15:15:15}$$

$$0.5 \times 7 = 3.5 \text{ tonnes of roots}$$



Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
100 kg/acre

Expected extra
yield from fertilizer:
7 tonne/acre

3 Obtain the recommended fertilizer rate

Let's see how this is done in our example for a field of **0.5** acre.

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

$$0.5 \times 60 = 30 \text{ kg of urea}$$

$$0.5 \times 100 = 50 \text{ kg of NPK 15:15:15}$$

$$0.5 \times 7 = 3.5 \text{ tonnes of roots}$$



But is this profitable?

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

4 Do a cost-benefit analysis

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.

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.

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.

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.

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

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.

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

 urea	7,000 ₦	B
Price of a 50 kg bag		

 NPK 15:15:15	8,000 ₦	C
Price of a 50 kg bag		

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.

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/acre)

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

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

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

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

4 Do a cost benefit analysis

Now do the following calculations:

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Benefit cost ratio (BCR)	I ÷ N	P

0.5 A
Your field area

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

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Total cost	L + M	# N
Profit from fertilizer	I - N	# O
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0.5 A
Your field area

7 F
tonnes / acre
Expected yield response

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

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

0.5 A
acre

Your field area

7 F
tonnes / acre

Expected yield response

$$0.5 \times 7 = 3.5$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.5 tonnes H
Increase in gross revenue	H x G	# I
Quantity of urea to apply	A x D	kg J
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Cost of urea	J x B ÷ 50	# L
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Total cost	L + M	# N
Profit from fertilizer	I - N	# O
Benefit cost ratio (BCR)	I ÷ N	P

0.5 A
Your field area

7 F
tonnes / acre
Expected yield response

$$0.5 \times 7 = 3.5$$

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	# I
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4 Do a cost-benefit analysis

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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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4 Do a cost-benefit analysis

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Increase in gross revenue	$H \times G$	N
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Cost of urea	$J \times B \div 50$	# L
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Total cost	$L + M$	₦ N
Profit from fertilizer	$I - N$	₦ O
Benefit cost ratio (BCR)	$I \div N$	P

17,000 ₦ / tonne G

Expected sale price of cassava roots

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

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Total cost	L + M	₦ N
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Benefit cost ratio (BCR)	I ÷ N	P

17,000 ₦ / tonne G

Expected sale price of cassava roots

$$3.5 \times 17,000 = 59,500$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.5 tonnes H
Increase in gross revenue	H x G	59,500 ₦ I
Quantity of urea to apply	A x D	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

17,000 ₦ / tonne G

Expected sale price of cassava roots

$$3.5 \times 17,000 = 59,500$$

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	59,500 # I
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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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Now do the following calculations:

Increase in production	$A \times F$	3.5 tonnes H
Increase in gross revenue	$H \times G$	59,500 # I
Quantity of urea to apply	$A \times D$	kg J
Quantity of NPK to apply	$A \times E$	kg K
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Profit from fertilizer	$I - N$	# O
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Profit from fertilizer	I - N	# O
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0.5 A
Your field area

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

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

0.5 A
Your field area

60 D
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

0.5 A
Your field area

60 D
kg / acre
Recommended urea rate

$$0.5 \times 60 = 30$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.5 tonnes H
Increase in gross revenue	H x G	59,500 # I
Quantity of urea to apply	A x D	30 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

0.5 A
Your field area

60 D
kg / acre
Recommended urea rate

$$0.5 \times 60 = 30$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

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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

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

0.5 A
Your field area

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.5 tonnes H
Increase in gross revenue	H x G	59,500 # I
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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

0.5 A
Your field area

100 E
Recommended NPK 15:15:15 rate

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.5 tonnes H
Increase in gross revenue	H x G	59,500 # 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

0.5 A
Your field area

100 E
Recommended NPK 15:15:15 rate

$$0.5 \times 100 = 50$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.5 tonnes H
Increase in gross revenue	H x G	59,500 # 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

0.5 A
Your field area

100 E
Recommended NPK 15:15:15 rate

$$0.5 \times 100 = 50$$

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	$A \times F$	3.5 tonnes H
Increase in gross revenue	$H \times G$	59,500 # 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	$A \times F$	3.5 tonnes H
Increase in gross revenue	$H \times G$	59,500 # 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	$A \times F$	3.5 tonnes H
Increase in gross revenue	$H \times G$	59,500 # 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:

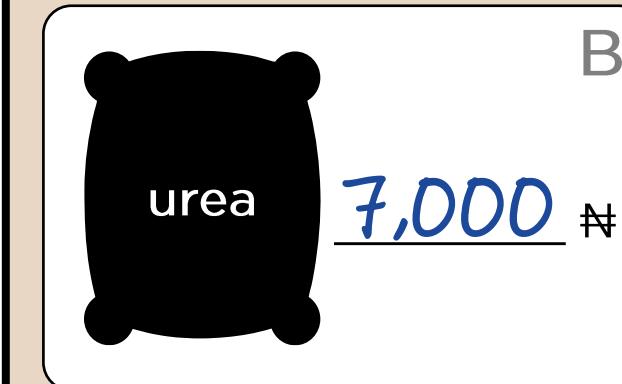
Increase in production	$A \times F$	3.5 tonnes H
Increase in gross revenue	$H \times G$	59500 # I
Quantity of urea to apply	$A \times D$	30 kg J
Quantity of NPK to apply	$A \times E$	50 kg K
Cost of urea	$J \times B \div 50$	# L
Cost of NPK	$K \times C \div 50$	# M
Total cost	$L + M$	# N
Profit from 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	$A \times F$	3.5 tonnes H
Increase in gross revenue	$H \times G$	59,500 # 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 x F	3.5 tonnes H
Increase in gross revenue	H x G	59,500 # 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



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

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	A x F	3.5 tonnes H
Increase in gross revenue	H x G	59,500 # 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

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	$A \times F$	3.5 tonnes H
Increase in gross revenue	$H \times G$	59,500 # 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

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	$A \times F$	3.5 tonnes H
Increase in gross revenue	$H \times G$	59,500 # 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	$A \times F$	3.5 tonnes H
Increase in gross revenue	$H \times G$	59,500 # 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
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4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

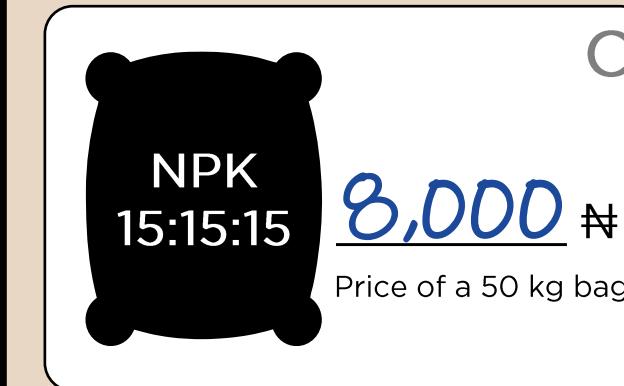
Increase in production	$A \times F$	3.5 tonnes H
Increase in gross revenue	$H \times G$	59,500 # I
Quantity of urea to apply	$A \times D$	30 kg J
Quantity of NPK to apply	$A \times E$	50 kg K
Cost of urea	$J \times B \div 50$	4,200 # L
Cost of NPK	$K \times C \div 50$	# M
Total cost	$L + M$	# N
Profit from fertilizer	$I - N$	# O
Benefit cost ratio (BCR)	$I \div N$	P

4 Do a cost-benefit analysis

4 Do a cost benefit analysis

Now do the following calculations:

Increase in production	$A \times F$	3.5 tonnes H
Increase in gross revenue	$H \times G$	59,500 # 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
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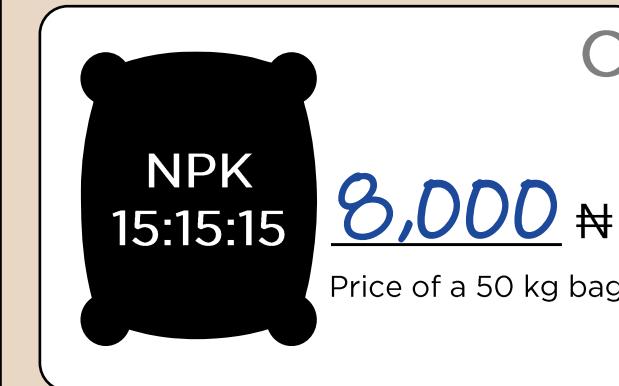


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$$50 \times 8,000 \div 50 = 8,000$$

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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	$A \times F$	3.5 tonnes H
Increase in gross revenue	$H \times G$	59,500 # 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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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

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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	3.5 tonnes H
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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	# O
Benefit cost ratio (BCR)	I ÷ N	P

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Profit from fertilizer	$I - N$	# O
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59,500

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Total cost	$L + M$	12,200 # N
Profit from fertilizer	$I - N$	59,500 # O
Benefit cost ratio (BCR)	$I \div N$	P

59,500

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Total cost	$L + M$	12,200 # N
Profit from fertilizer	$I - N$	
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$$59,500 - 12,200$$

4 Do a cost-benefit analysis

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Profit from fertilizer	I - N	# O
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$$59,500 - 12,200 = 47,300$$

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$$59,500 \div 12,200$$

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$$59,500 \div 12,200 = 4.9$$

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Total cost	L + M	12,200 # N
Profit from fertilizer	I - N	47,300 # O
Benefit cost ratio (BCR)	I ÷ N	4.9 P

$$59,500 \div 12,200 = 4.9$$

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Total cost	L + M	12,200	# N
Profit from fertilizer	I - N	47,300	# O
Benefit cost ratio (BCR)	I ÷ N	4.9	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 3.5 tonnes of cassava roots in our field. This has value of 59,500 ₦.

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- 1 What is the increase in gross revenue? **59,500 ₦**

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- 1 What is the increase in gross revenue? 59,500 ₦
- 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? 59,500 ₦
- 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? | 59,500 ₦ |
| 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? 59,500 #
- 2 What is the total cost of fertilizer? - 12,200 #
- 3 What is the profit from fertilizer? 47,300 #

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- | | | |
|---|--|------------|
| 1 | What is the increase in gross revenue? | 59,500 ₩ |
| 2 | What is the total cost of fertilizer? | - 12,200 ₩ |
| 3 | What is the profit from fertilizer? | 47,300 ₩ |

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?

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Sometimes

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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

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Very rarely

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You don't like taking risks

You can accept some risk

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Only invest in fertilizer if
Expected Gross Value Increase
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Only invest in fertilizer if
Expected Gross Value Increase
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? | 59,500 ₦ |
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Whether this profit is large enough depends on your risk appetite.

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

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

$36,300 < 59,500 \rightarrow$ 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? | 59,500 # |
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The farmer's worksheet guides you through these steps.

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- 1 What is the increase in gross revenue? 59,500 #
- 2 What is the total cost of fertilizer? - 12,200 #
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The farmer's worksheet guides you through these steps.

The ratio of benefits over costs (BCR) was already calculated:

4 Do a cost-benefit analysis

Let's evaluate: is fertilizer use profitable?

- 1 What is the increase in gross revenue? 59,500 #
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Benefit cost ratio (BCR)	$I \div N$	P
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4 Do a cost-benefit analysis

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- 1 What is the increase in gross revenue? 59,500 #
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The ratio of benefits over costs (BCR) was already calculated:

Benefit cost ratio (BCR)	$I \div N$	4.9	P
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$$59,500 \div 12,200 = 4.9$$

4 Do a cost-benefit analysis

The farmer's worksheet guides you through these steps.

The ratio of benefits over costs (BCR) was already calculated:

Benefit cost ratio (BCR)	$I \div N$	4.9	P
--------------------------	------------	-----	---

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

4 Do a cost-benefit analysis

The farmer's worksheet guides you through these steps.

The ratio of benefits over costs (BCR) was already calculated:

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This is also explained in the farmer's worksheet:

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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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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...



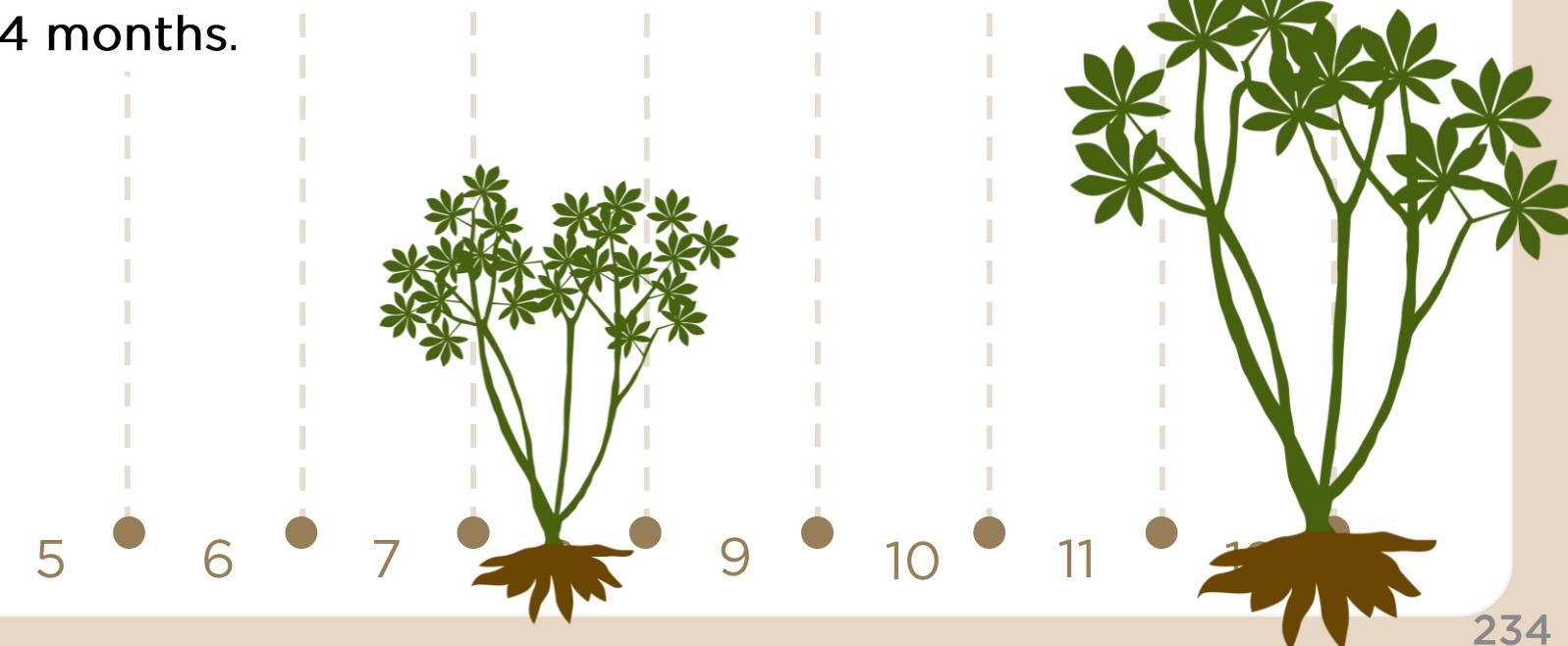
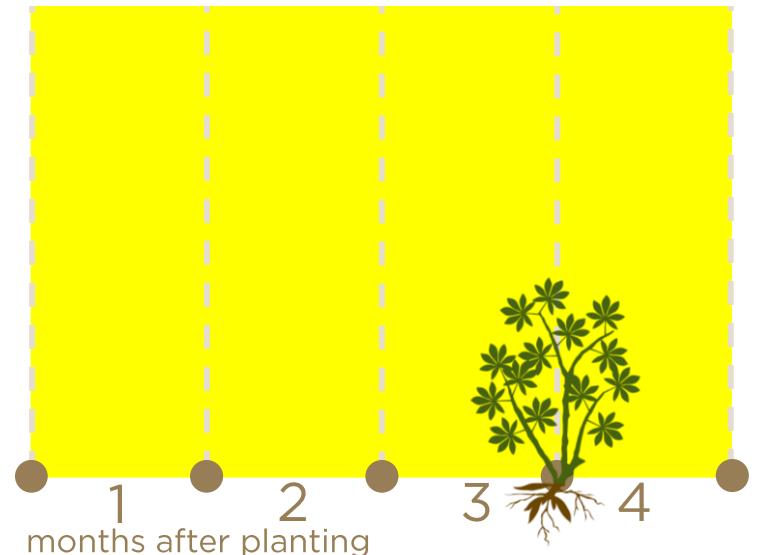
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Fertilizer is best applied in the first 4 months.



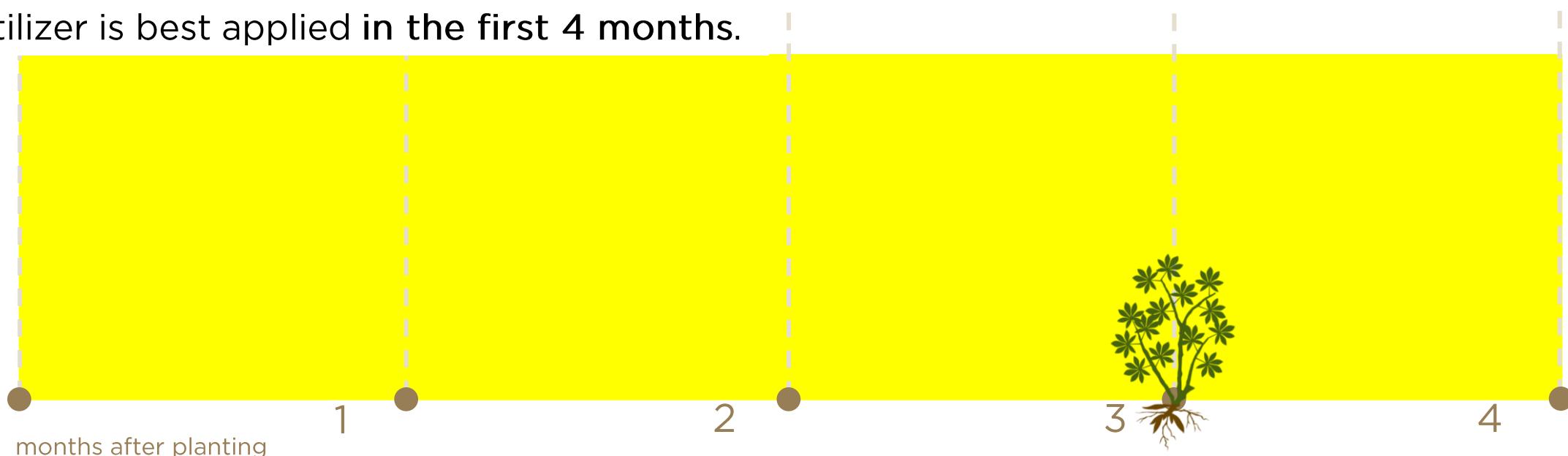
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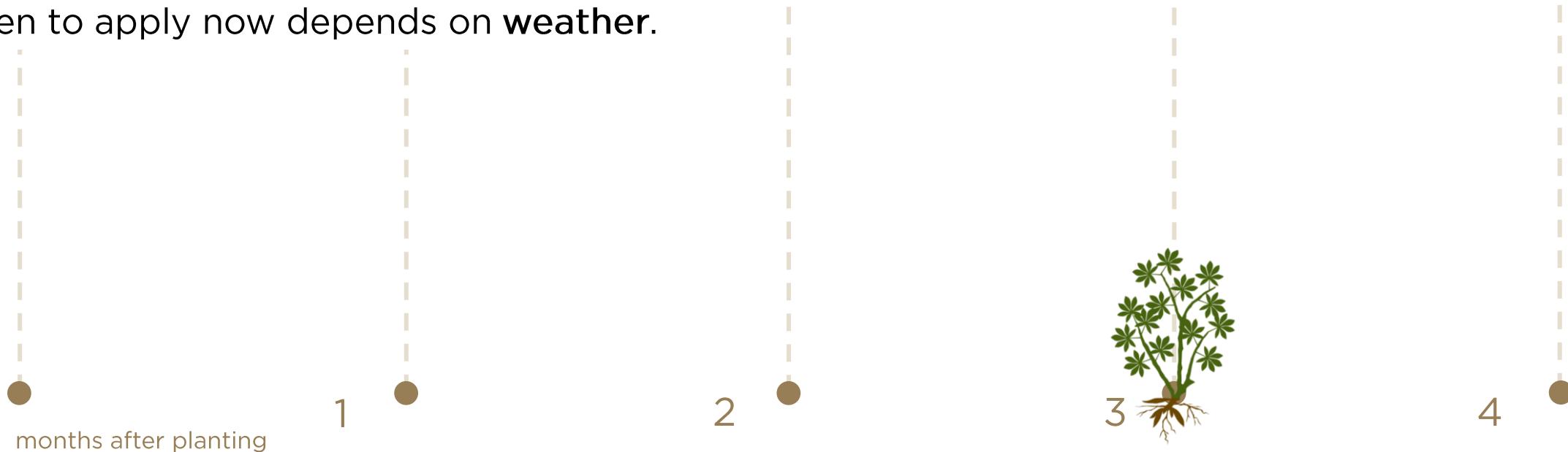
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When to apply now depends on **weather**.



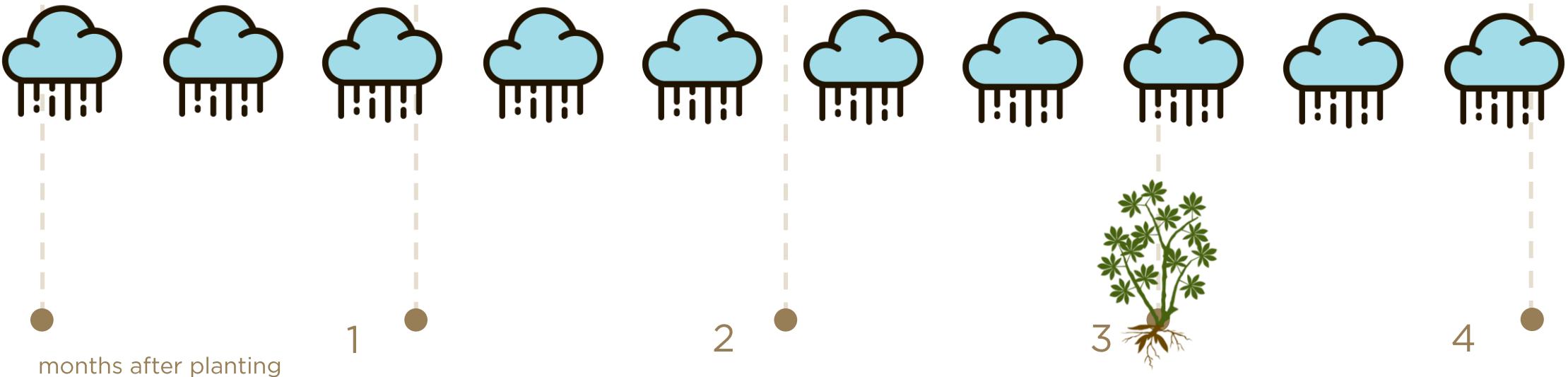
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If you expect ample and regular rainfall...

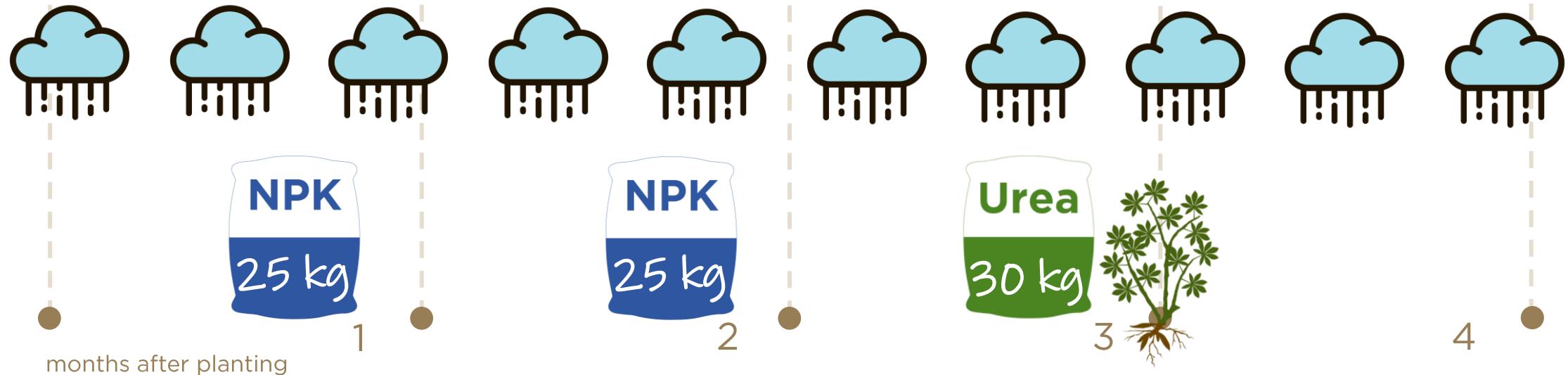


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If you expect ample and regular rainfall... then split and spread the fertilizer application.

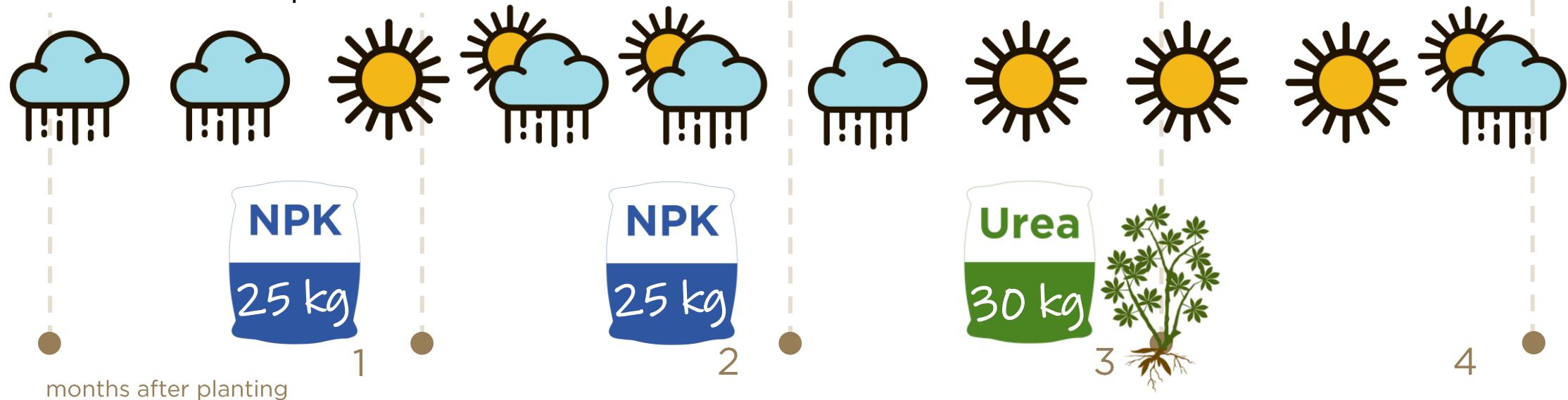


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If rainfall is less frequent...

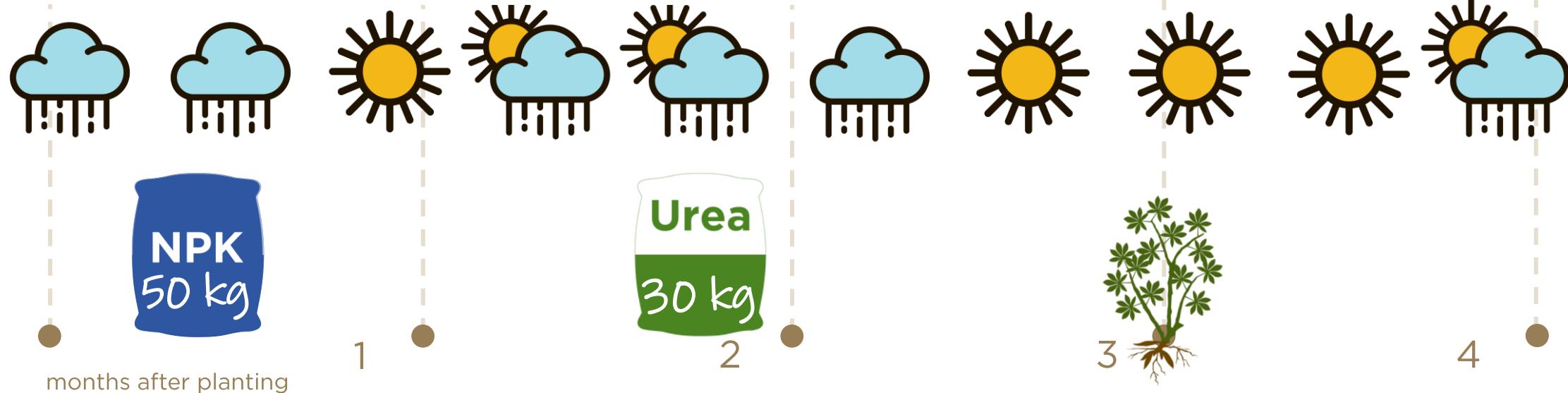


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If rainfall is less frequent... then apply sooner and in fewer splits.

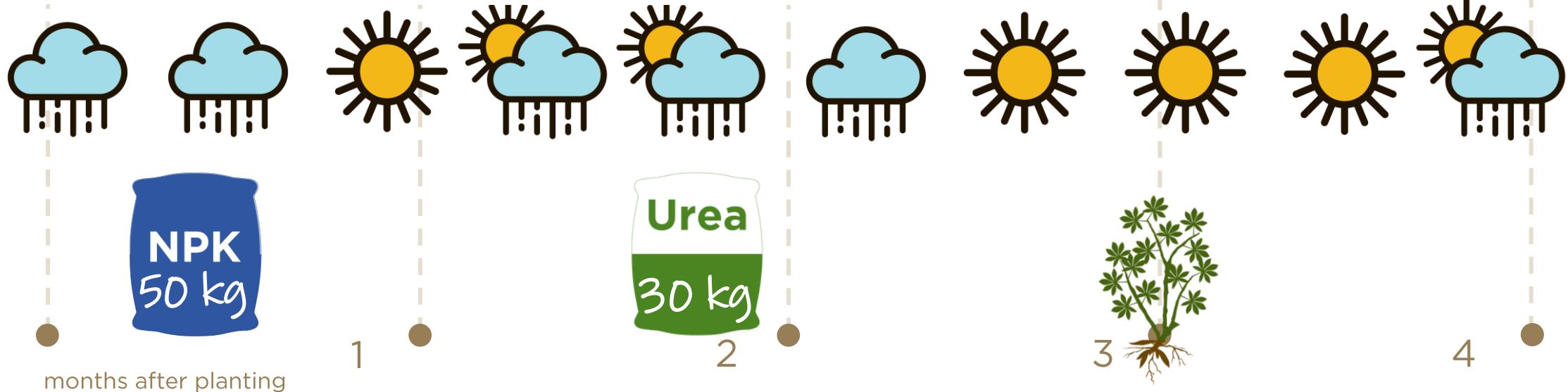


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These are examples!

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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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.

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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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If you plant at 1 m between rows and 0.8 m within row (5,000 plants per acre), then 1 bag of fertilizer per acre is about 2 levelled water caps of fertilizer per plant.

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Let's look at our example for our field of **0.5** acre.

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

Recommended rate
of urea in Gboko:
60 kg/acre

Recommended rate
of NPK 15:15:15:
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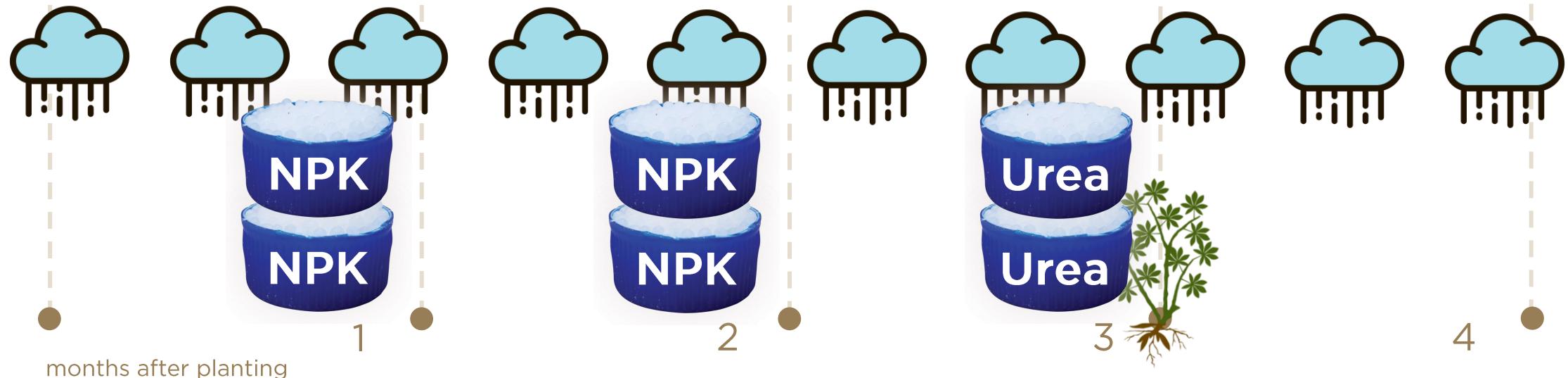
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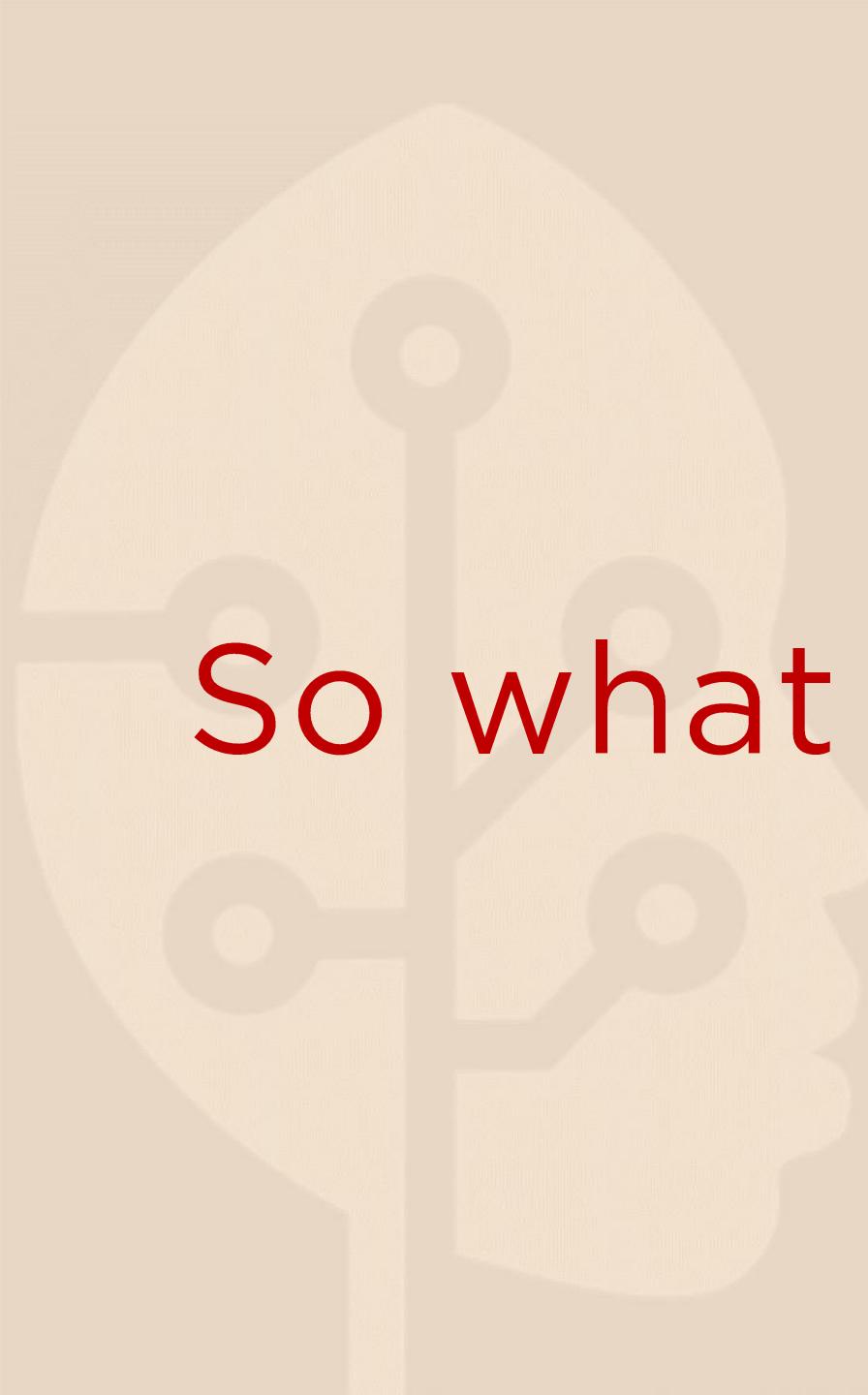
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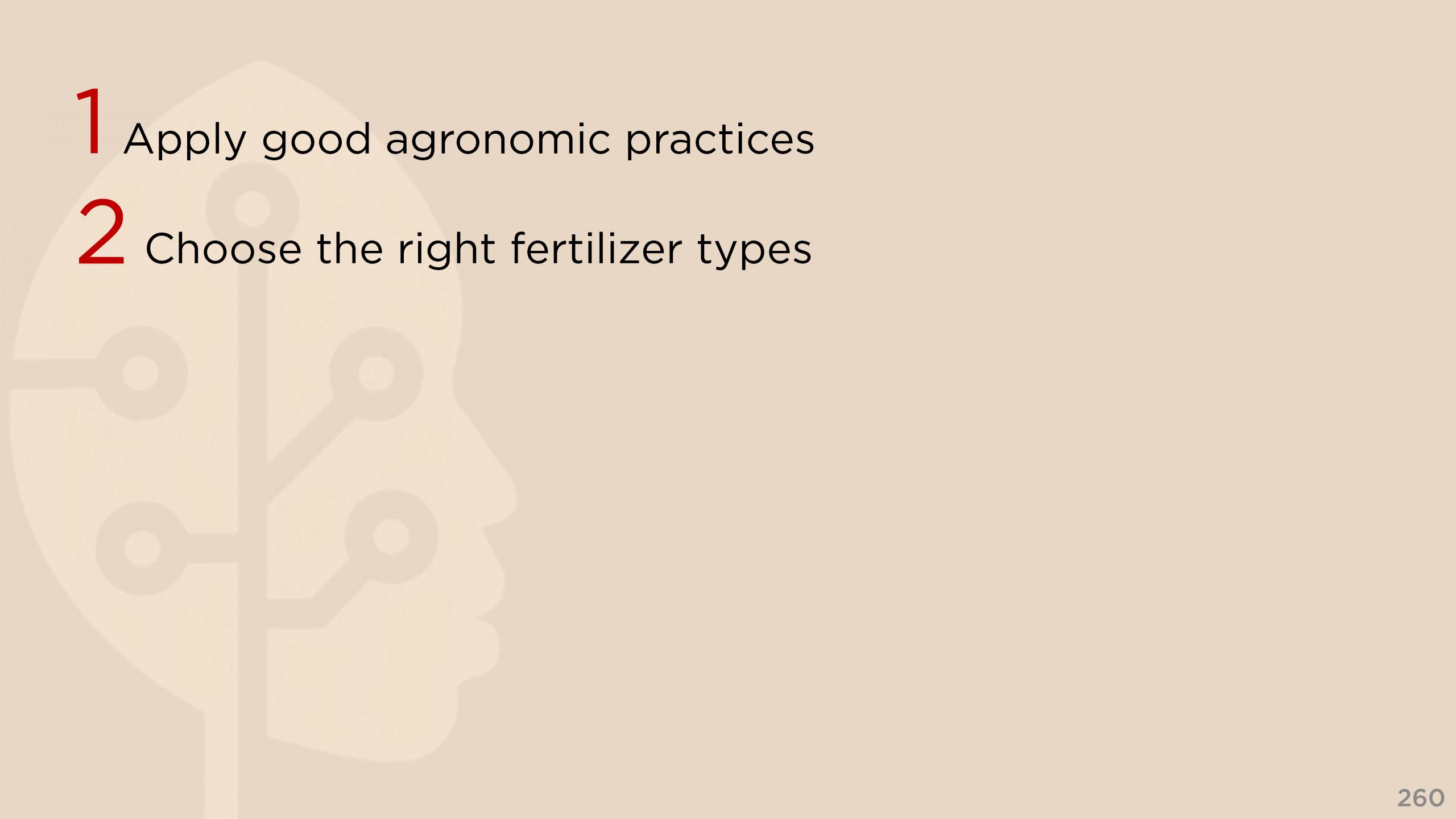


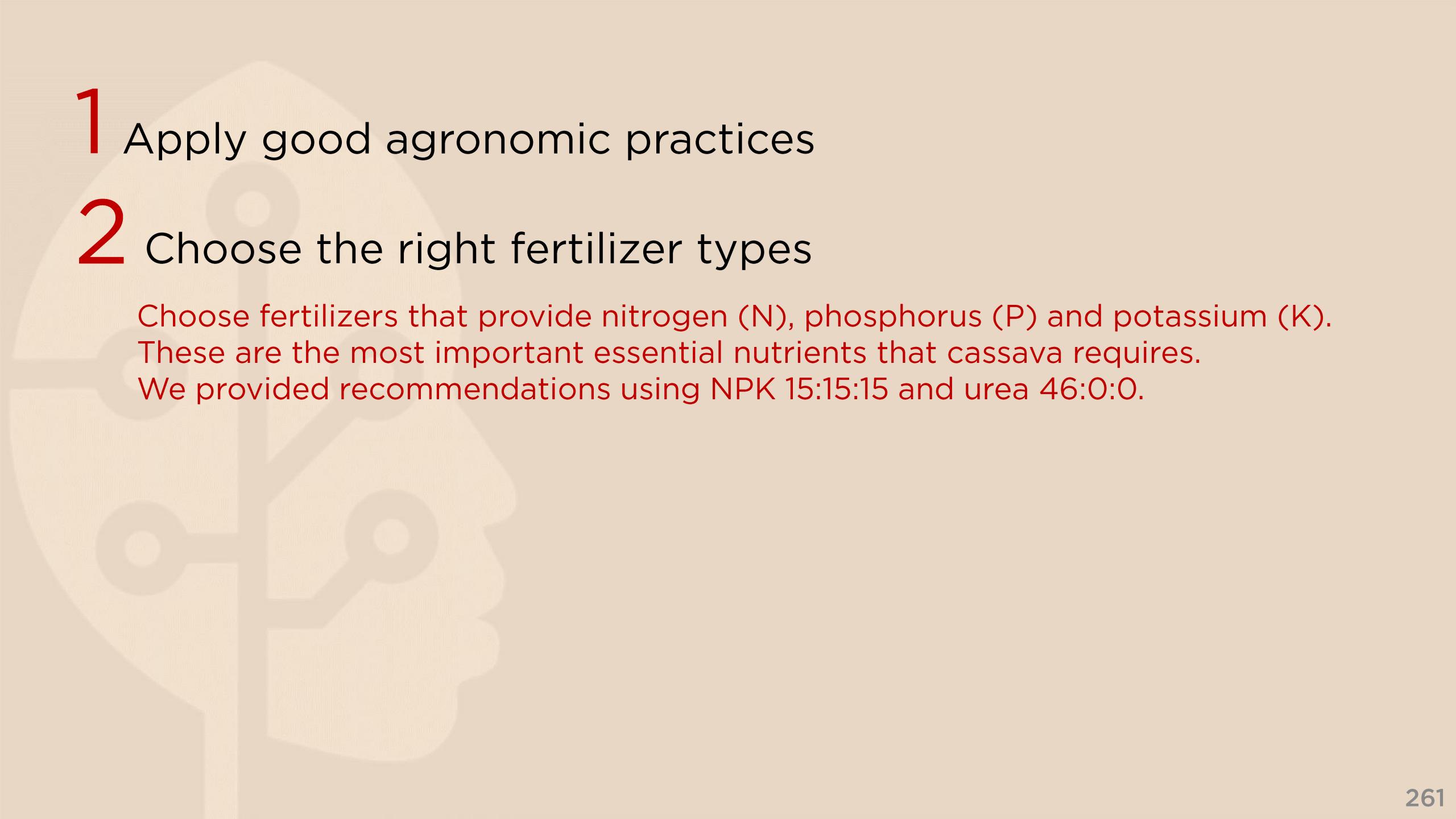
So what have we learned?

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.

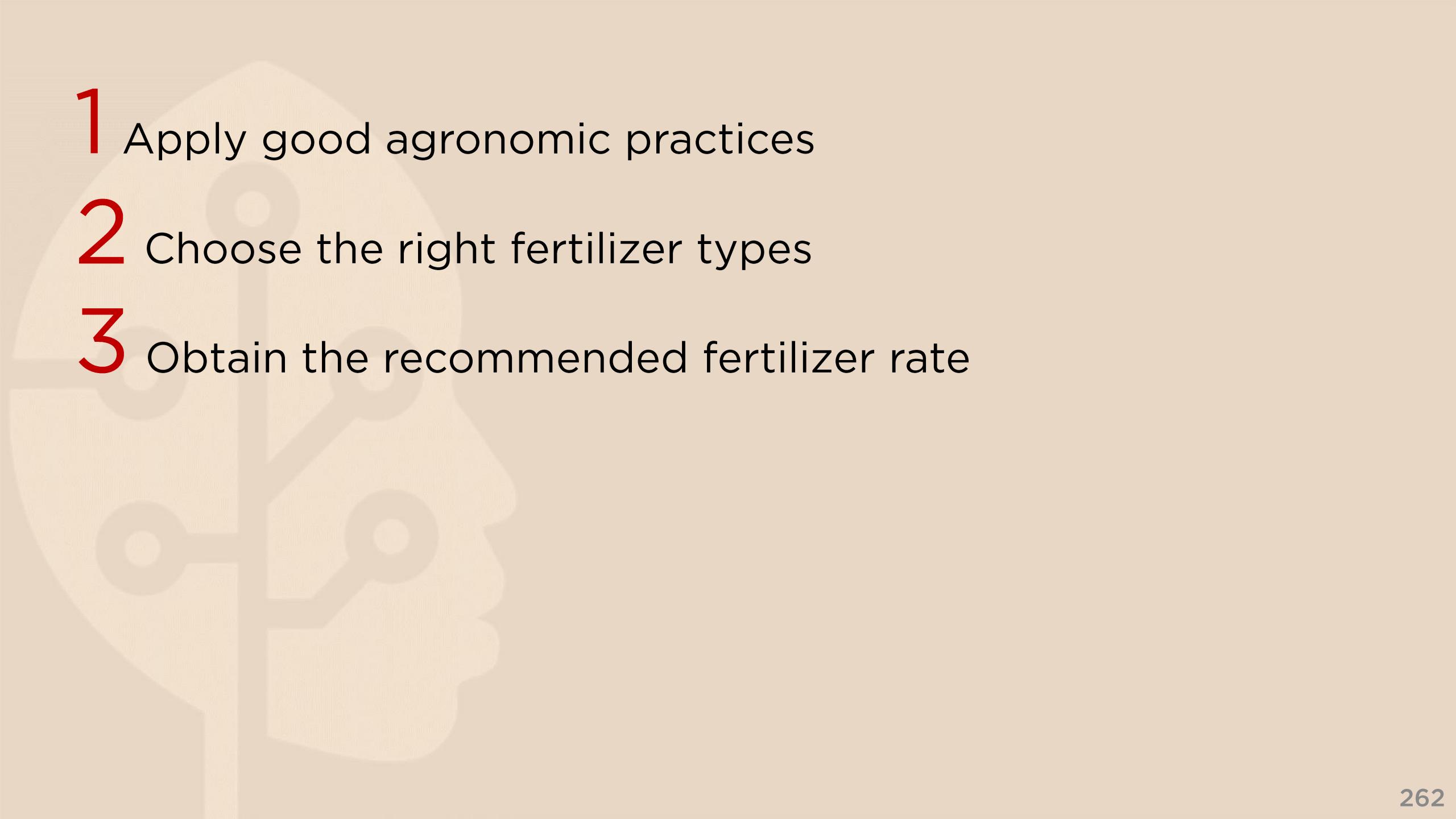
- 
- 1 Apply good agronomic practices
 - 2 Choose the right fertilizer types



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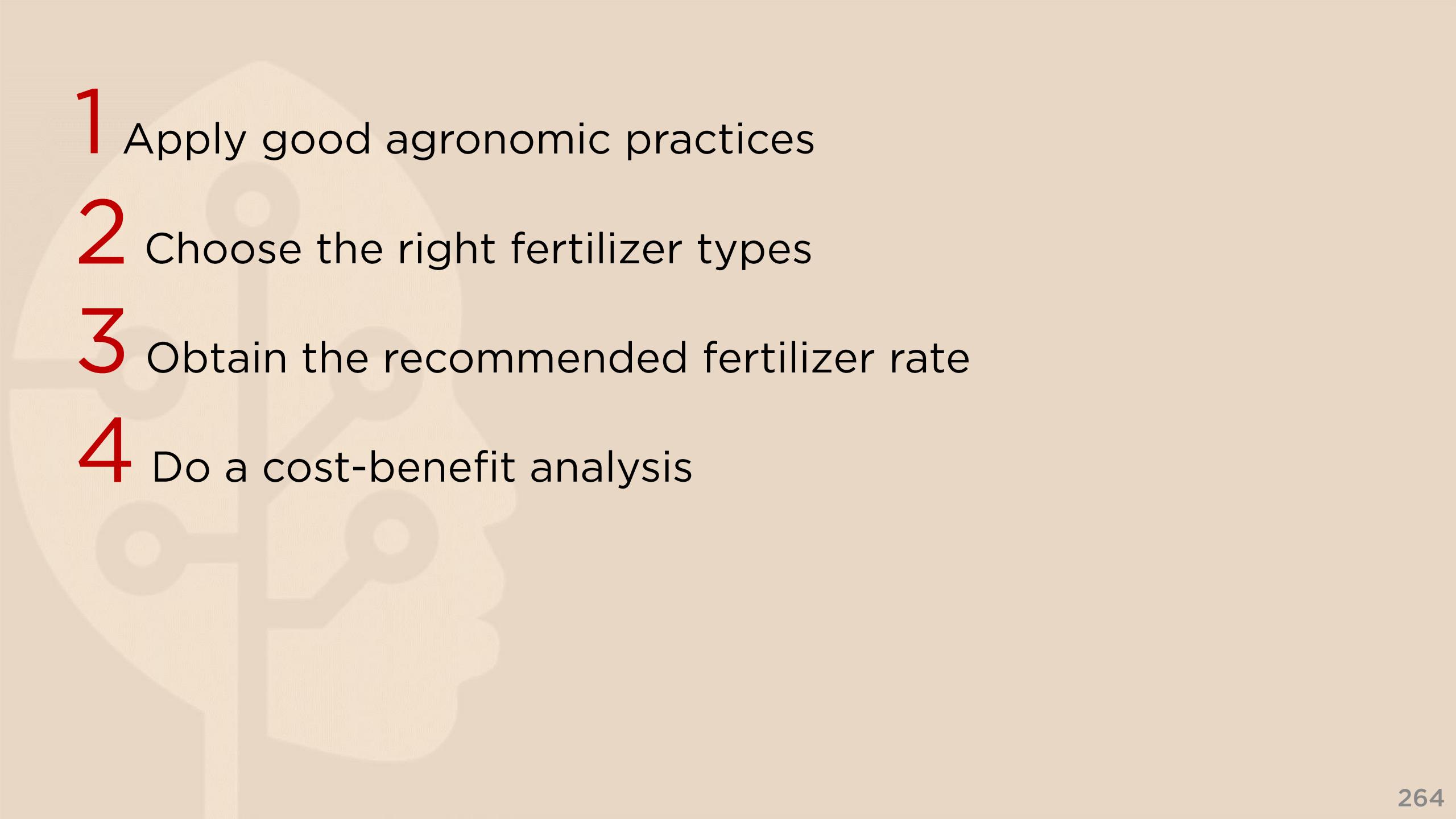
2 Choose the right fertilizer types

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

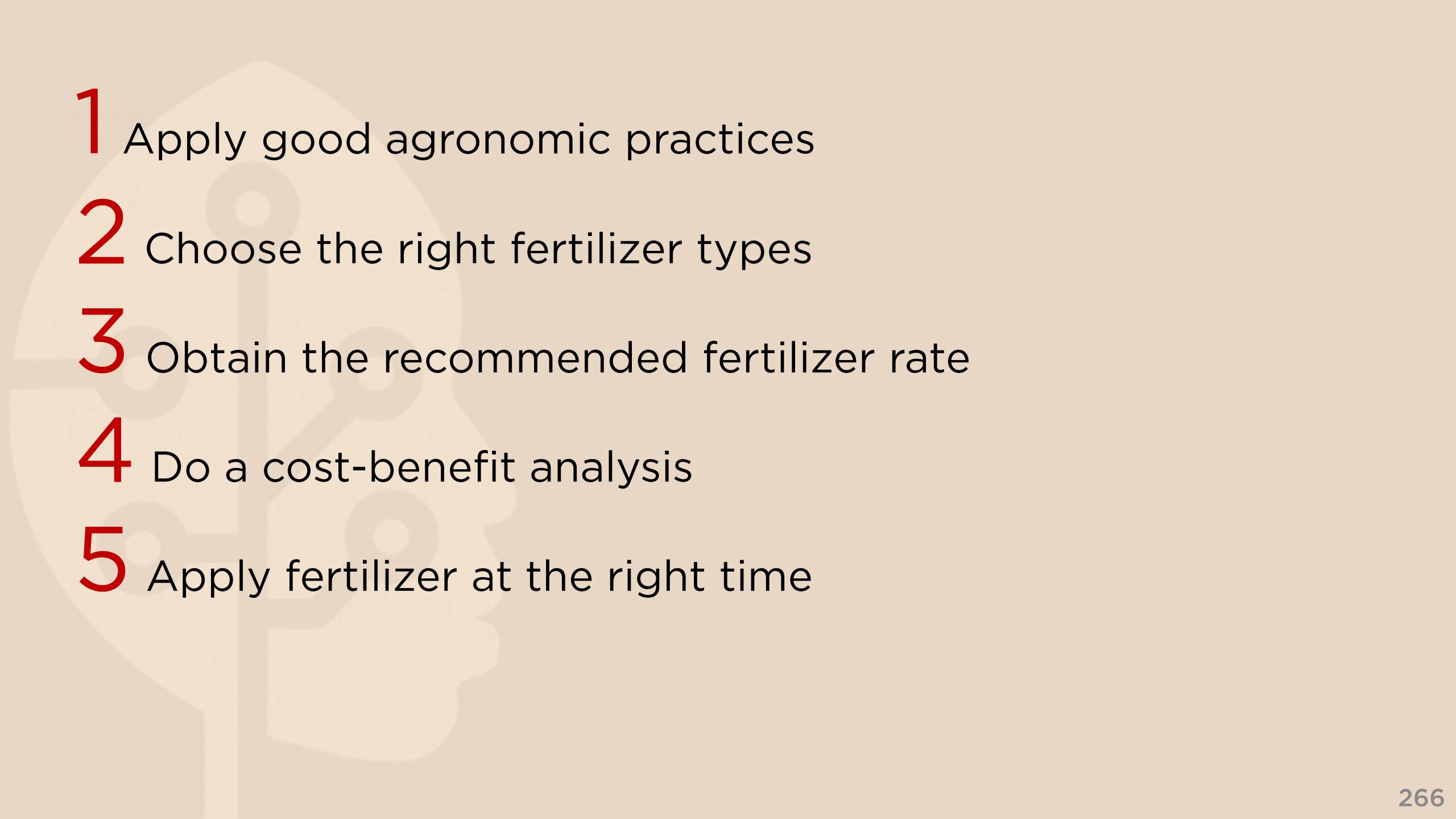
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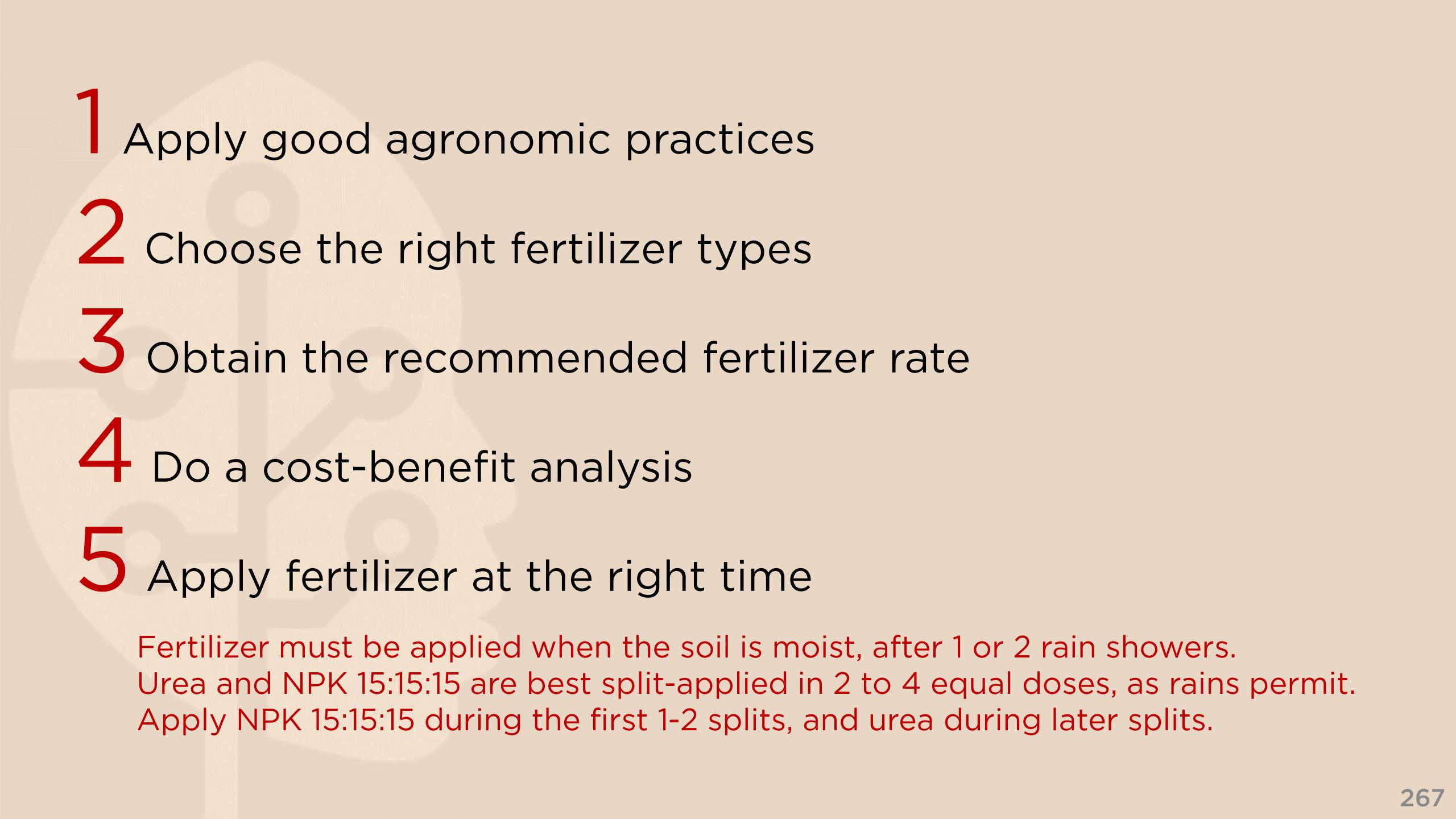
The recommended rate of fertilizer depends on the soil and weather in your area. We showed how you can obtain the recommended rate of NPK 15:15:15 and urea for your local government area, your planting month, and your current yield level.

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

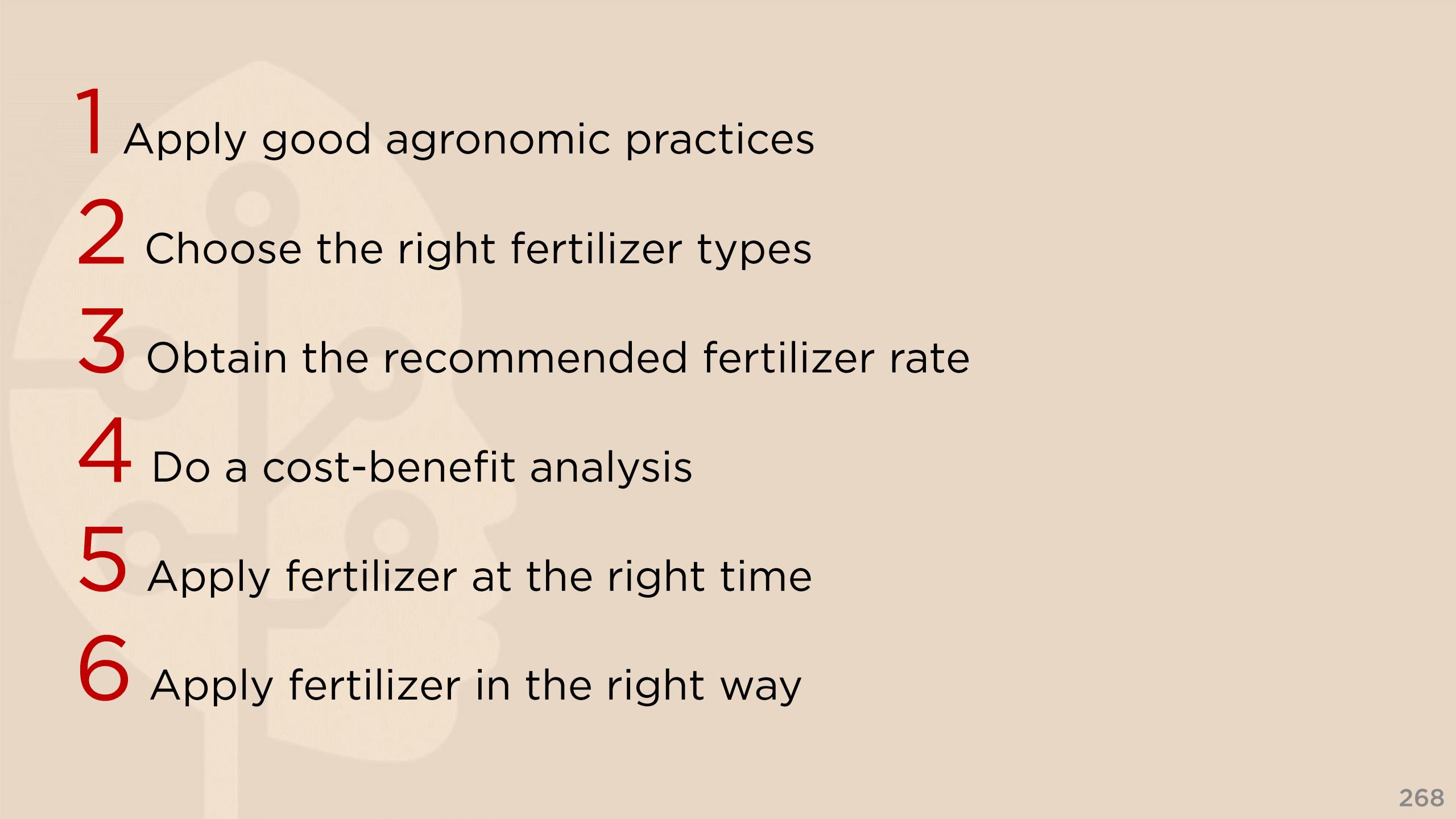
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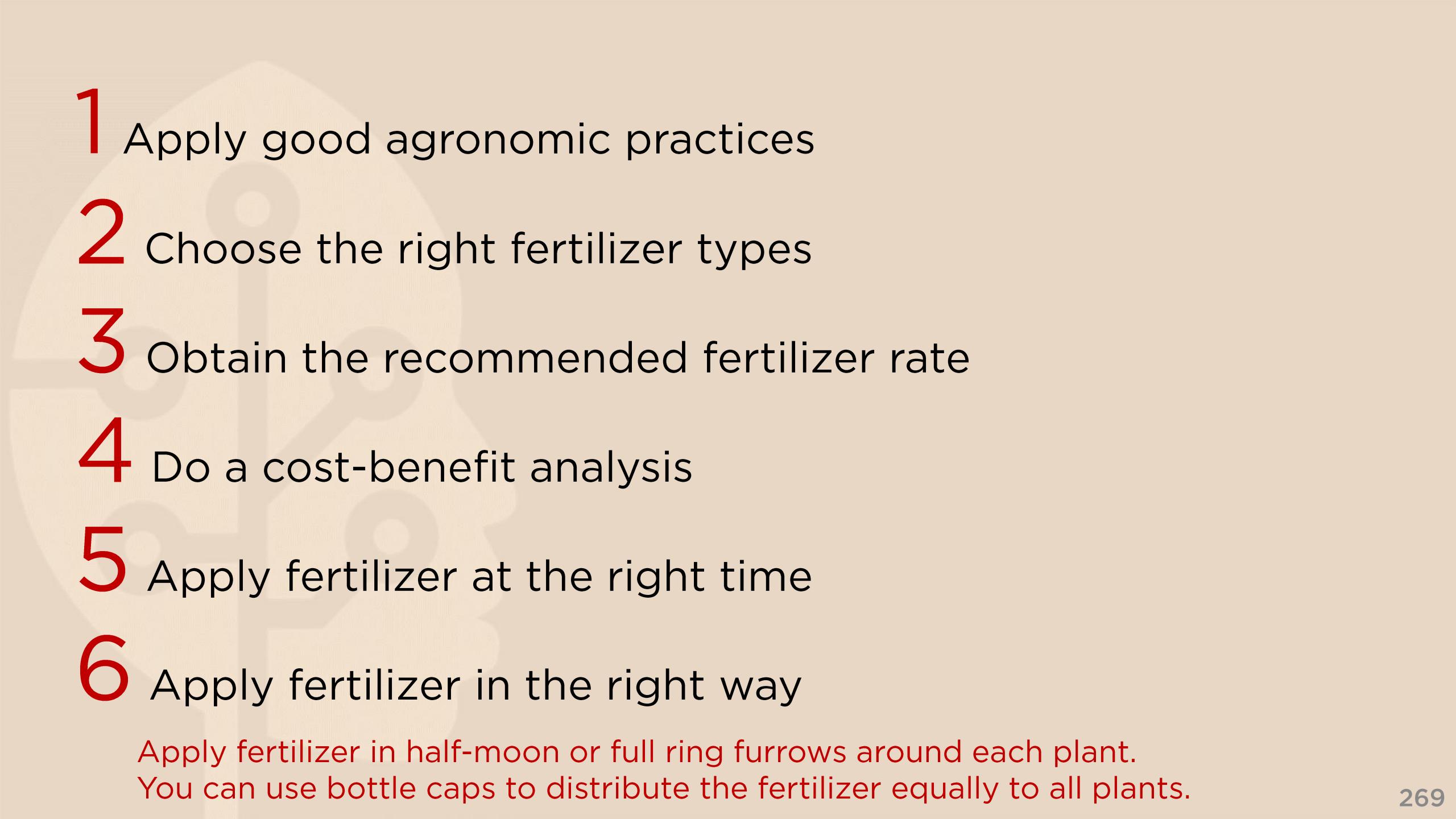
You must evaluate the profitability of fertilizer use before deciding to invest. Use your knowledge of how cassava performed in your field previously, the fertilizer price, and the expected cassava root price to calculate the expected extra profit.

- 
- 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.
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- A faint background watermark shows a hand holding a fertilizer bag and a fertilizer spreader.
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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