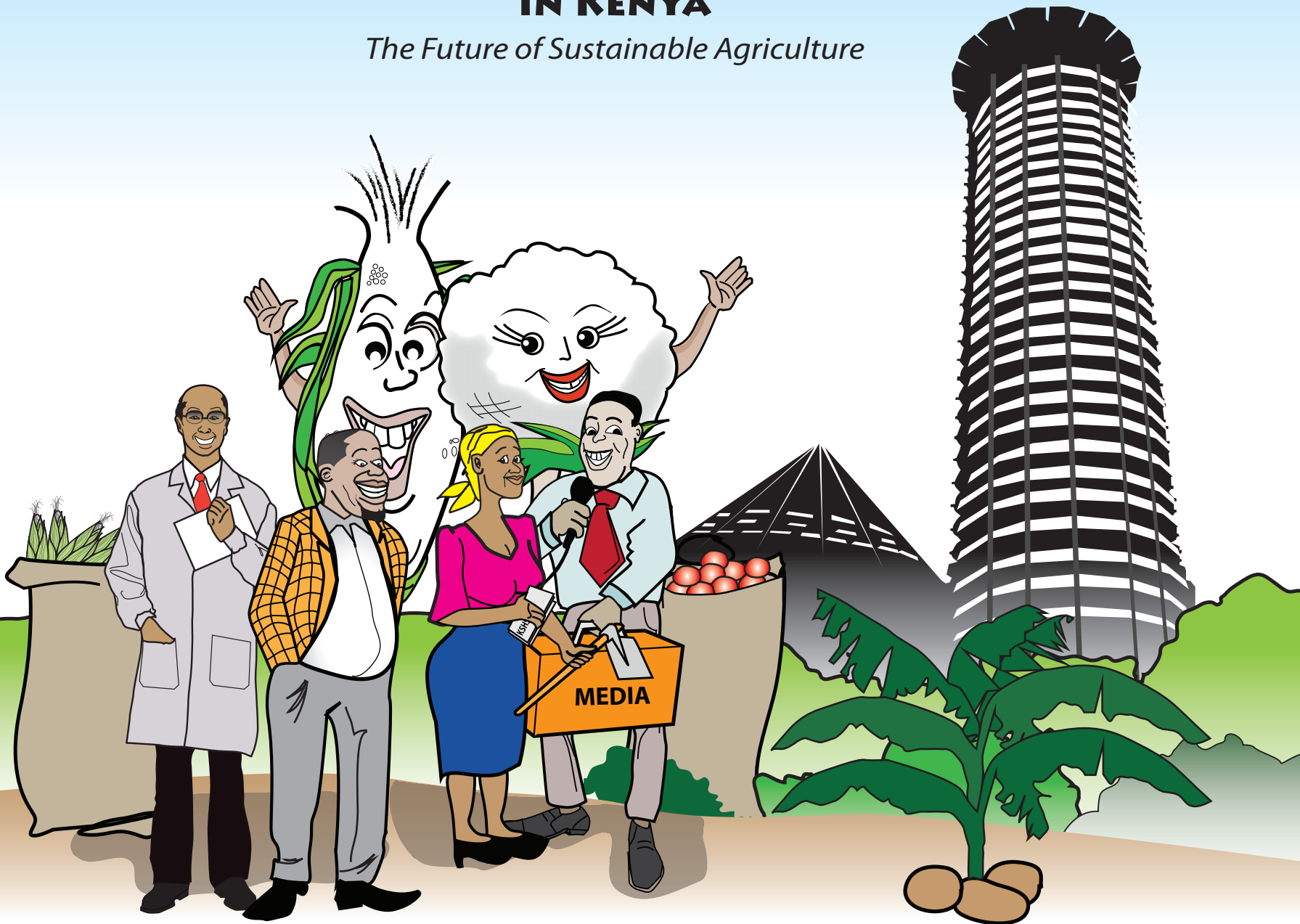


# ADVENTURES OF MANDY & FANNY IN KENYA

*The Future of Sustainable Agriculture*



**Publisher: The International Service for the Acquisition of Agri-biotech Applications (ISAAA)**

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**ISAAA on net:** For more information on crop biotechnology visit: [www.isaaa.org/kc](http://www.isaaa.org/kc)

**ADVENTURES OF**  
**MANDY & FANNY**  
**IN KENYA**

*The Future of Sustainable Agriculture*



ISAAA Biotech Crops Animation Series

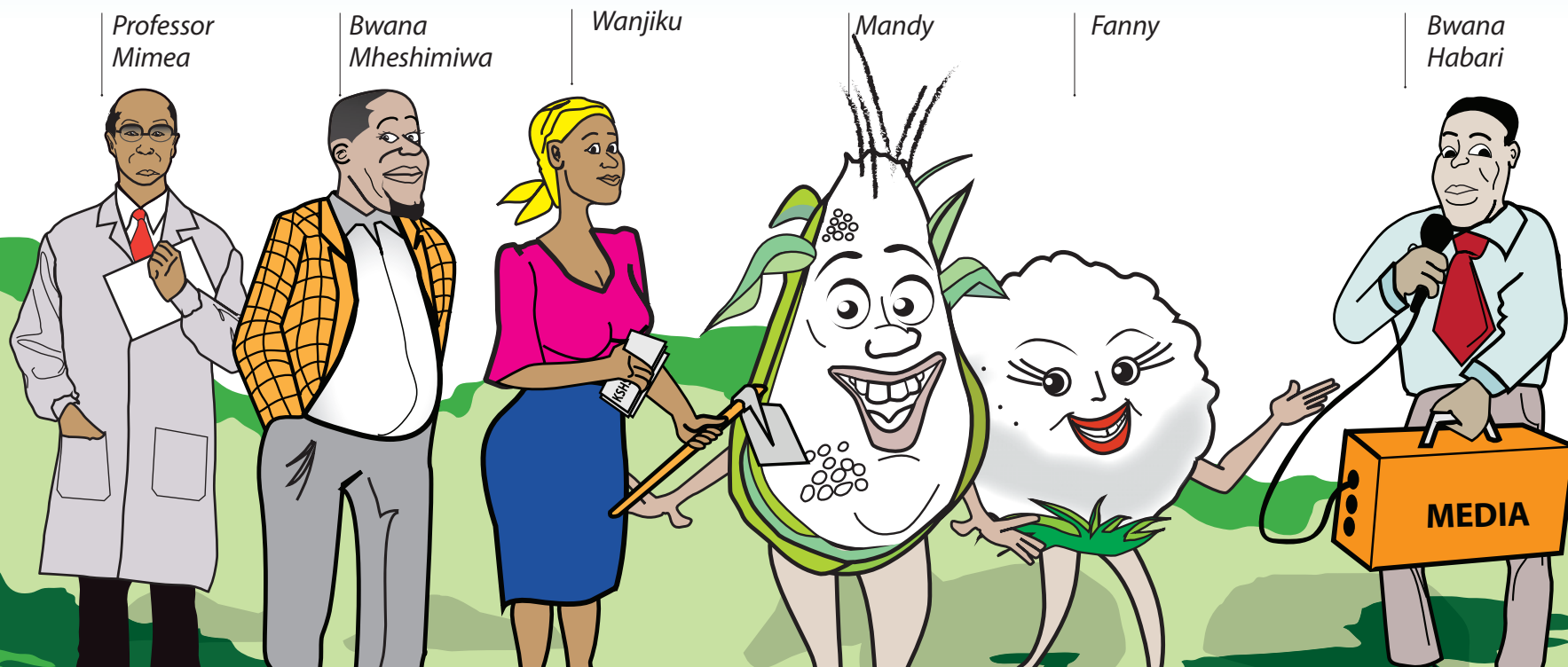
# Glossary

Name in Kiswahili	Translation
<i>Pamba</i>	Cotton in Dholuo
<i>Bwana Mheshimiwa</i>	Honorable Member of Parliament
<i>Bwana Habari</i>	News Reporter/Journalist
<i>Hamjambo!</i>	How are you?
<i>Jambo</i>	Hello
<i>Kilimo Bora</i>	Good farming practices
<i>Kwaheri ya kuonana</i>	Bye bye
<i>Mitumba</i>	Second-hand clothes
<i>Mwananchi</i>	Citizen
<i>Bando</i>	Maize in Dholuo
<i>Pwani</i>	Coast

<i>Unga</i>	Maize flour
<i>Wananchi</i>	Citizens
<i>Wanjiku</i>	The ordinary Kenyan
<i>Professor Mimea</i>	Plant expert
<i>Yawa</i>	A popular exclamation in Dholuo

## Acronyms

WHO	World Health Organization
FAO	Food and Agriculture Organization
KARI	Kenya Agricultural Research Institute





## Introduction

The following story is an adaptation of ISAAA's biotech crops educational cartoon book titled ***Mandy and Fanny: The Future of Sustainable Agriculture*** that was developed by the ISAAA South Asia Office, India. It narrates the story of two characters — Mandy and Fanny—who personify genetically modified (GM) maize and cotton.

The crops have been commercially grown in different countries around the world, including South Africa, since 1996. Mandy and Fanny pay a visit to Kenya and are surprised by the negative publicity in the media.

They decide to take an educational tour of the country and interact with major stakeholders:

- Government representatives
- Politicians and opinion leaders
- Journalists
- Farmers
- Consumers

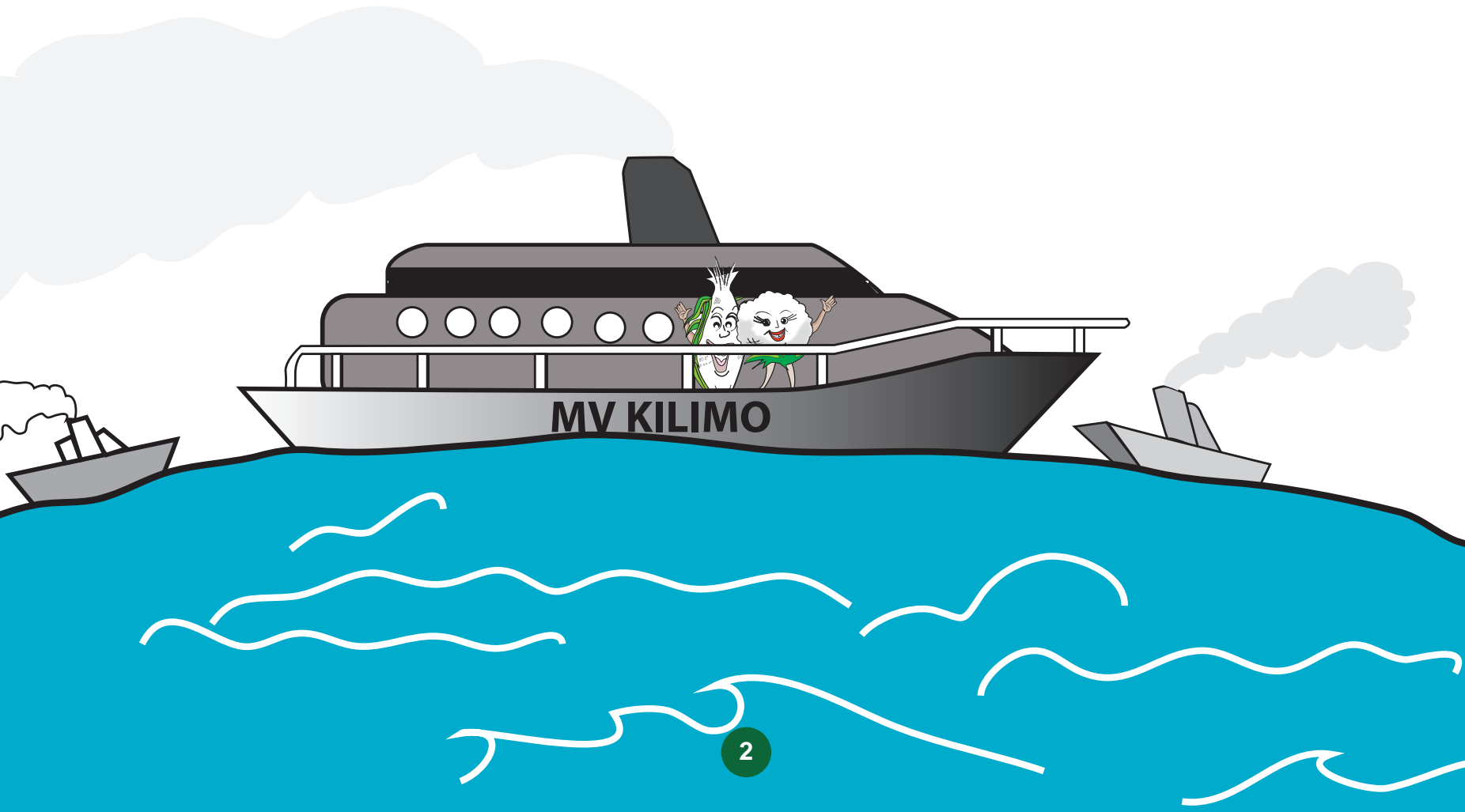
During the tour, they provide useful insights on biotechnology and its benefits as well as correct the misconceptions about crop biotechnology.

*Wanjiku*, a character representing the ordinary Kenyan (*mwananchi*) has several encounters with Mandy and Fanny throughout the tour. *Bwana Habari* is a journalist who plays a key role in relaying information to the public about the trip.

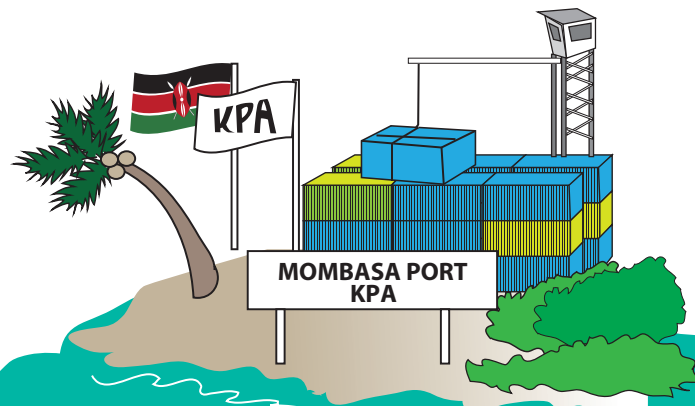
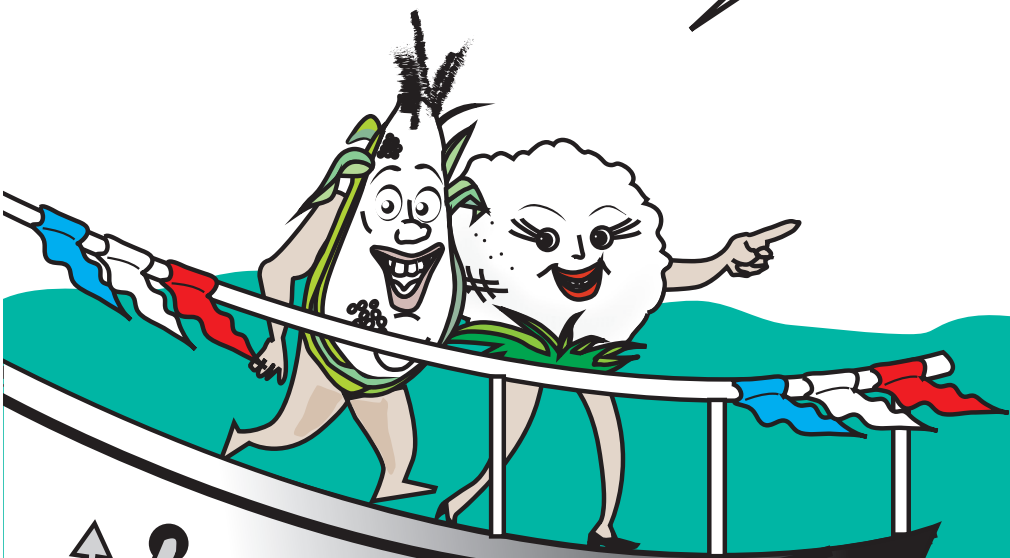
*Mheshimiwa* is a Member of Parliament who relies on media stories to understand biotechnology. From his encounter with Mandy and Fanny, he decides to undertake a fact finding mission to South Africa and Burkina Faso. He gets all the facts and becomes a champion of biotechnology.

The story ends with a national conference that discusses the status of agricultural biotechnology in Kenya.

A vessel, *MV KILIMO BORA*, approaches the Mombasa port from South Africa. On board are Mandy and Fanny.

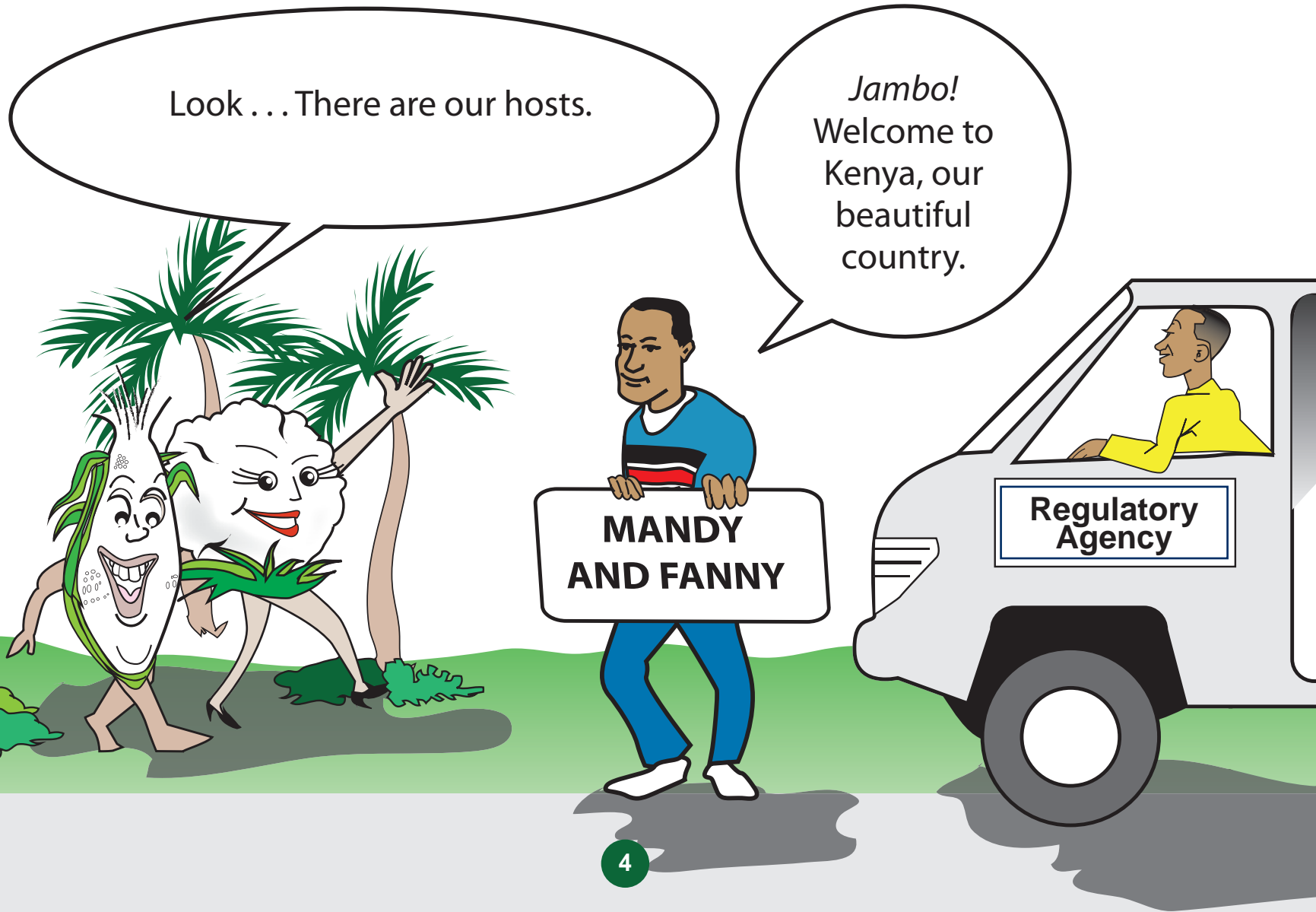


Hey! Look over there...land!  
That must be Kenya's port of  
Mombasa.

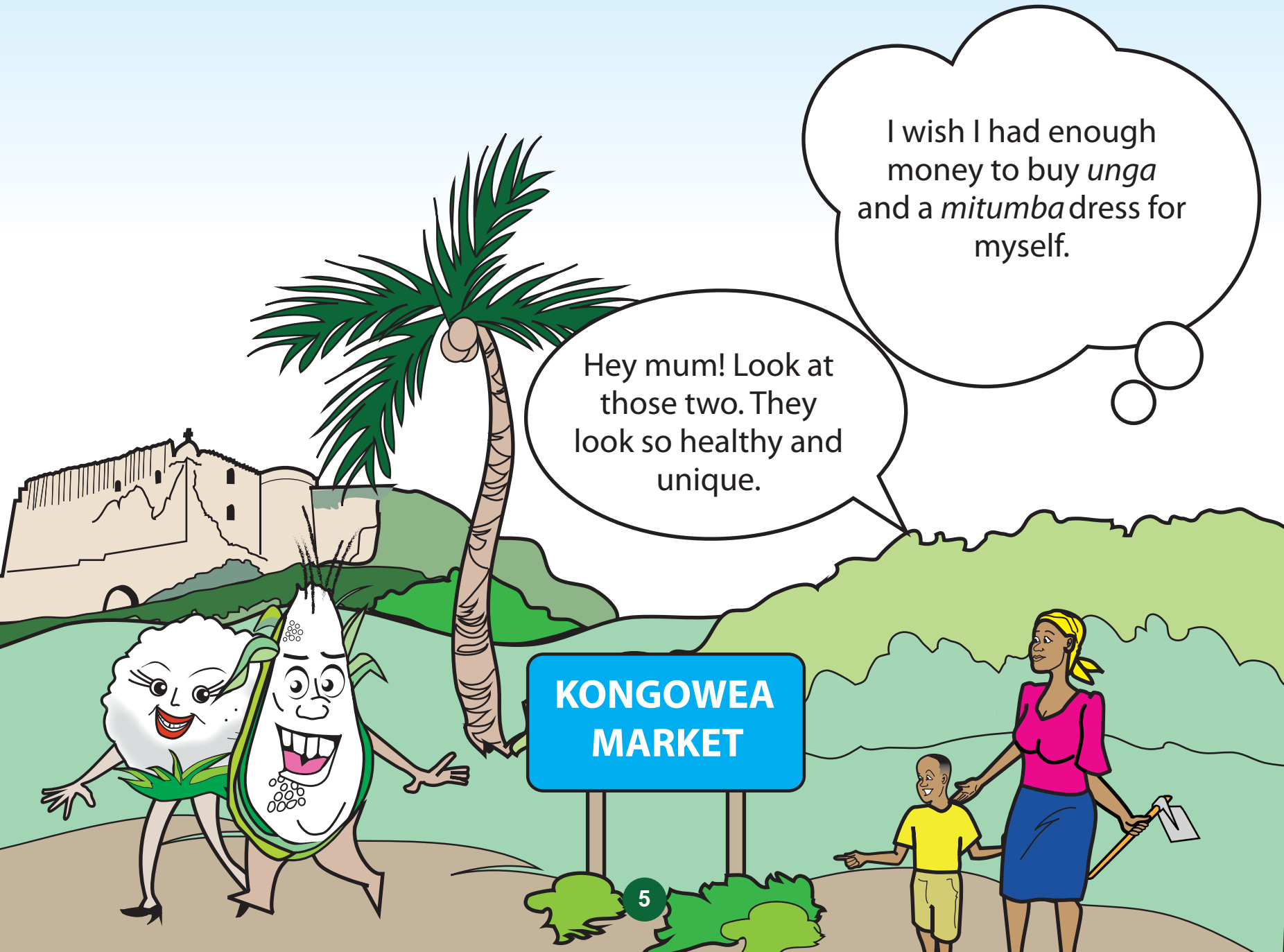


MV KILIMO

Upon arrival and being cleared at the port, they are received by biosafety regulators.



Mandy and Fanny go sight-seeing in Mombasa ....



Hey mum! Look at those two. They look so healthy and unique.

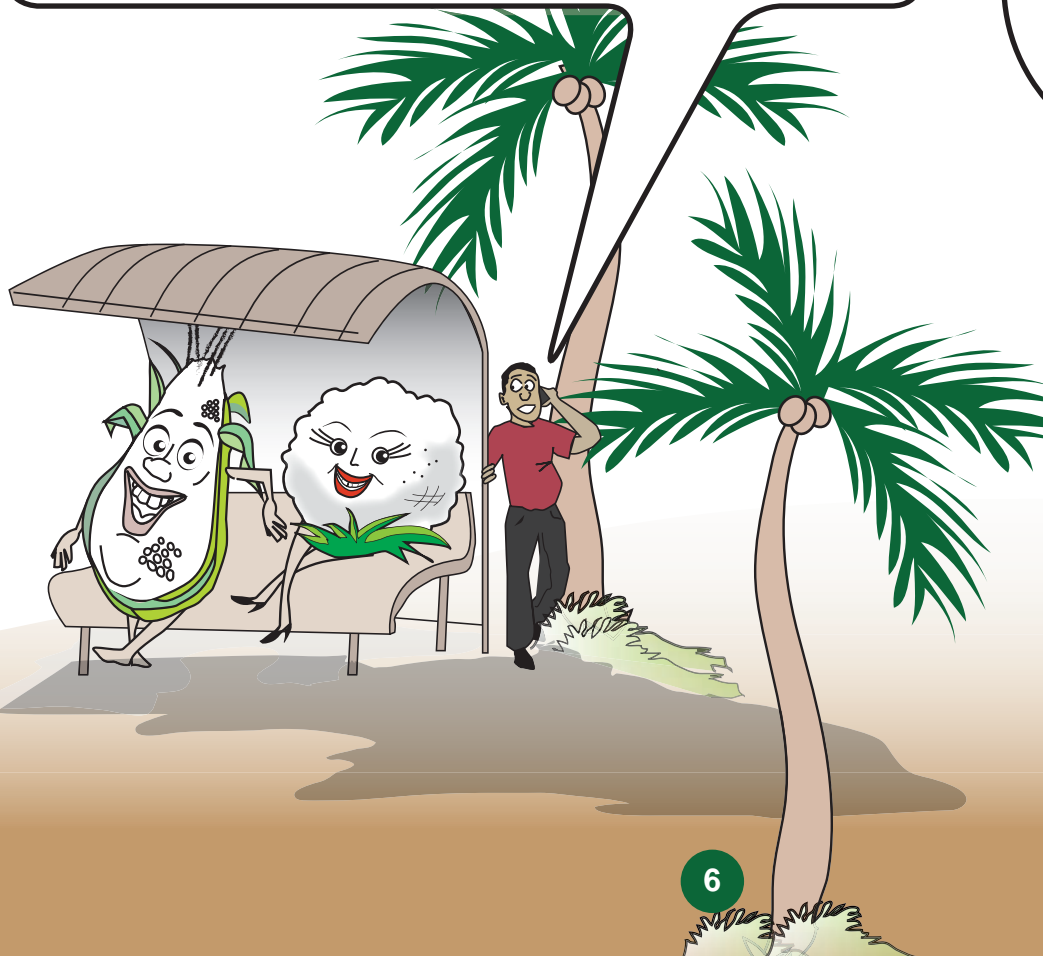
I wish I had enough money to buy *unga* and a *mitumba* dress for myself.

**KONGOWEA  
MARKET**

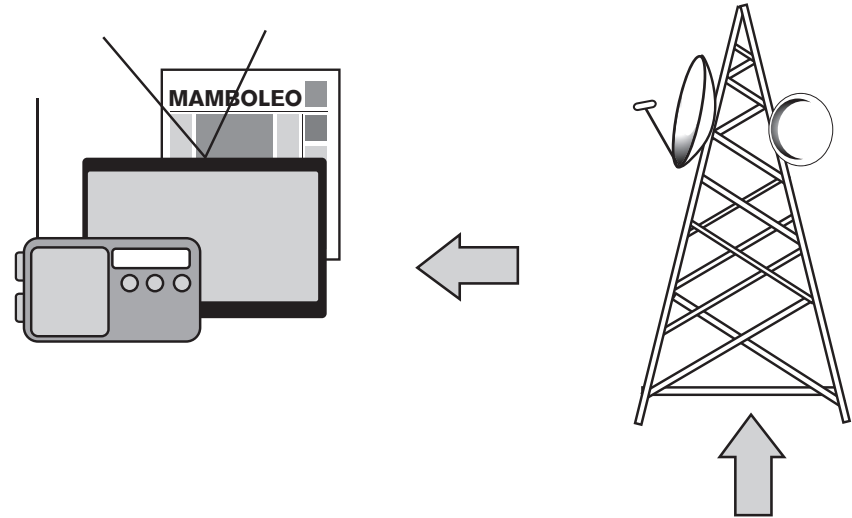
Meanwhile, Bwana Habari, gets wind of Mandy and Fanny's arrival...

Hello Bwana Habari, *have* you seen the two biotechs visiting Kongowea Market, Fort Jesus, Kenyatta Beach....

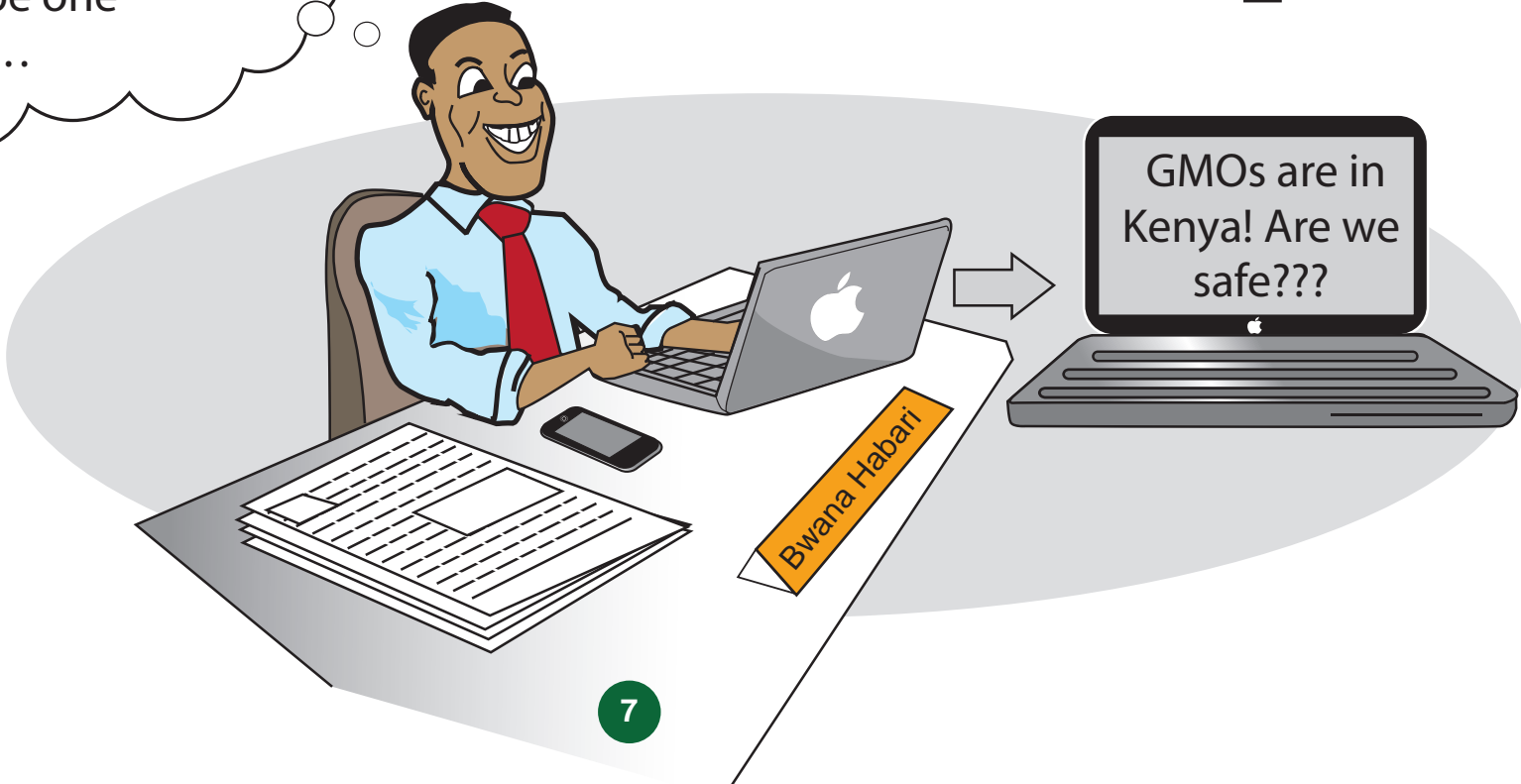
Eish! Biotechs in Mombasa?  
Oh No!

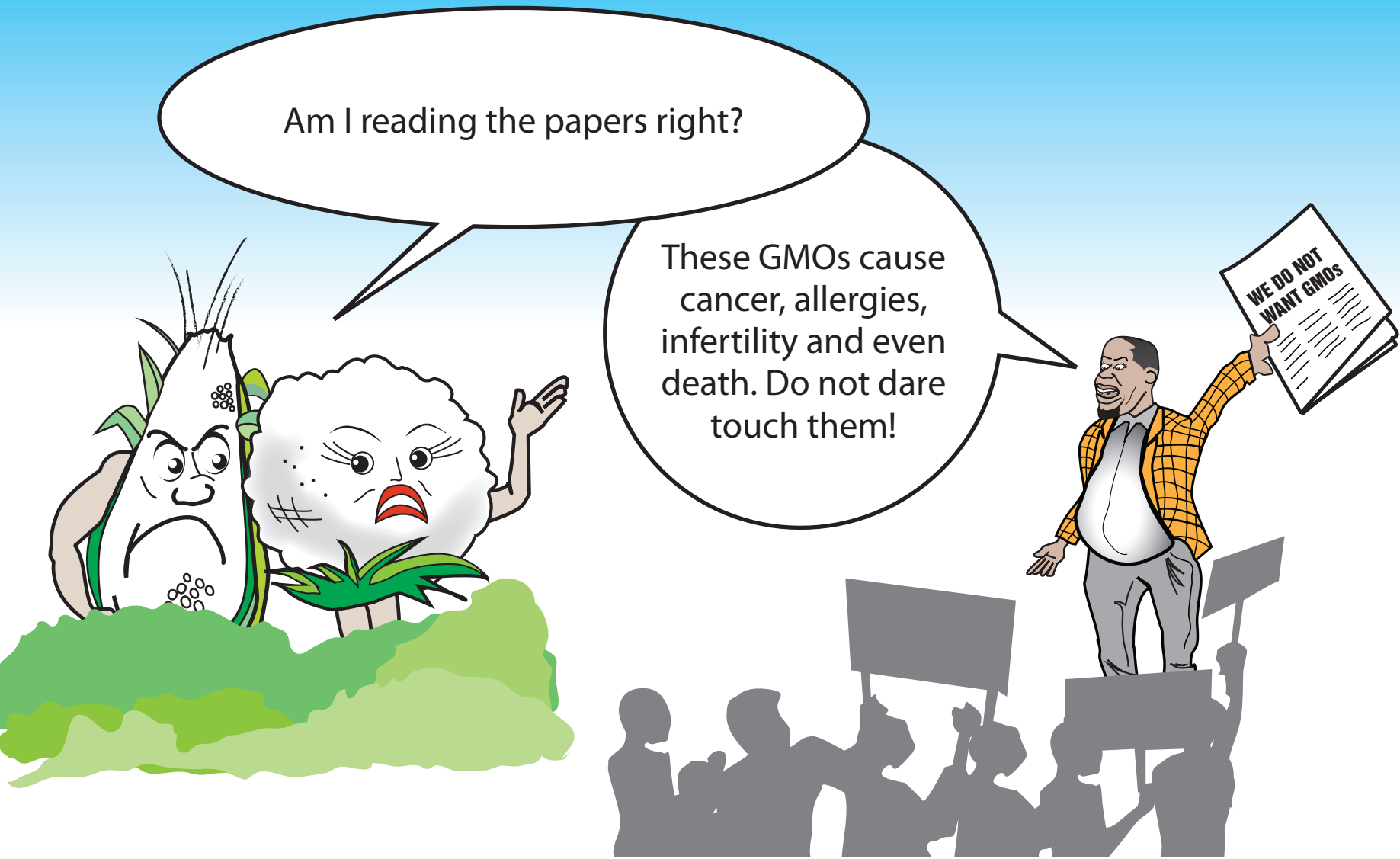


Bwana Habari ponders the implications of the pair's trip.



This will be one big story...



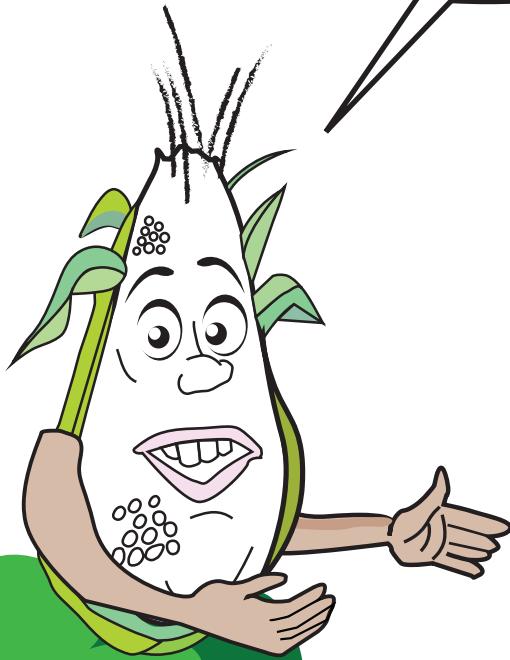


Media reports on biotechnology alarm Bwana Mheshimia, who calls a rally to denounce the technology and warn his constituents against eating GM foods.



What do we do?

We say no to GMOs.  
We do not want  
them!...



NO TO GMOs

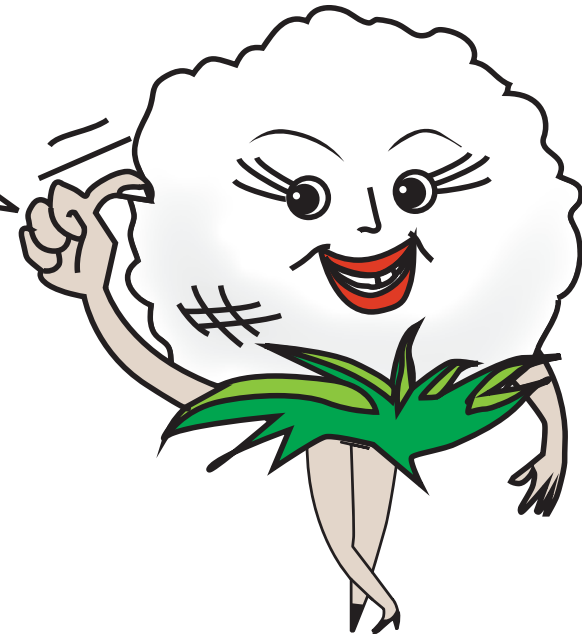
NO TO BIOTECHS

Free  
Kenya

NO TO GMOs

Should we return to where they have accepted us?

No, Mandy. Clearly there is a problem here. We should find a solution that will benefit all, especially Wanjiku.



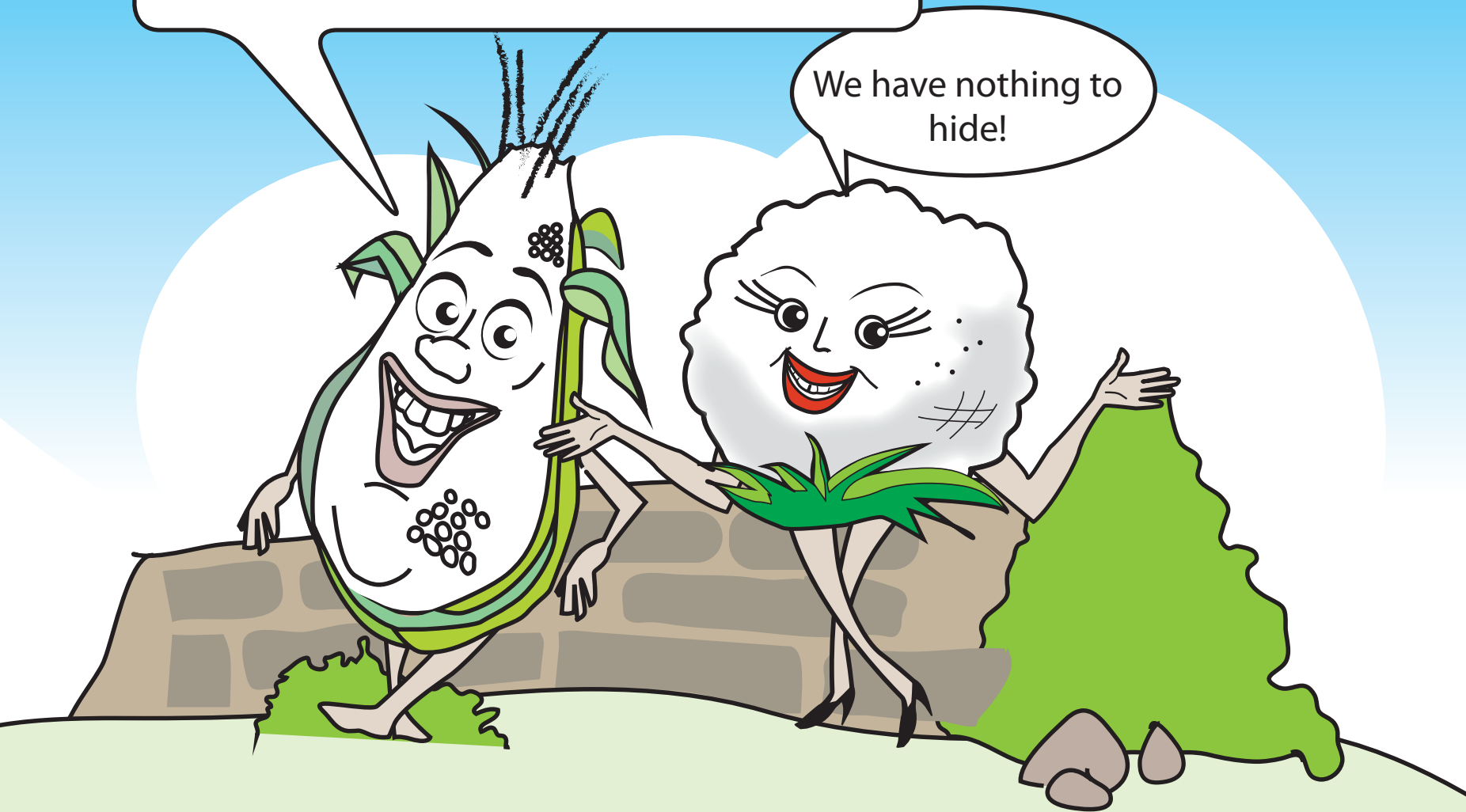
Suppose we hold a media briefing, and provide the facts about modern biotechnology?

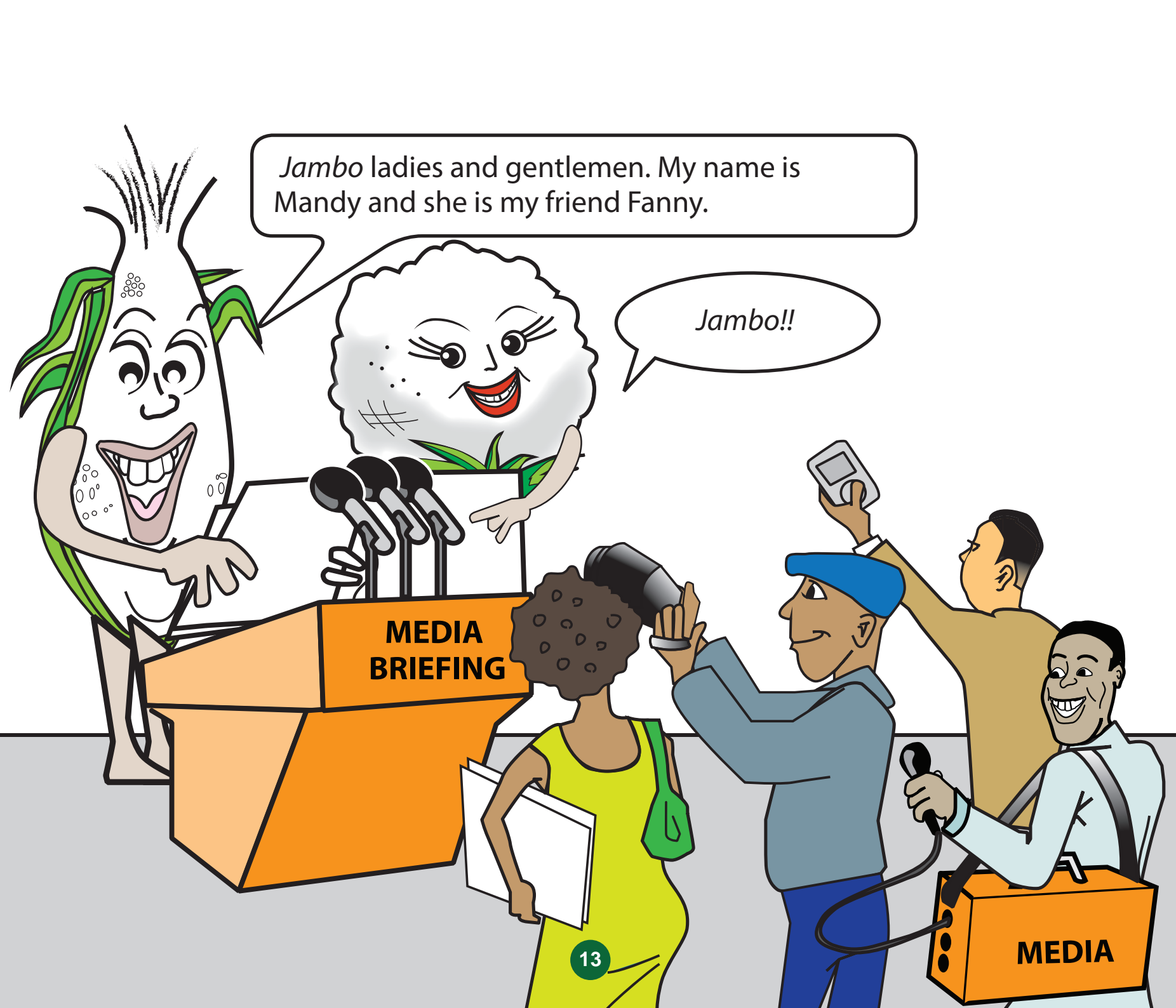
Hmmh! Good thinking Mandy. If we can educate the media, especially *Bwana Habari*, it would be a big leap forward.



With *Bwana Habari* on our side, we will be able to reach policy makers, farmers and consumers. These people seem to take media stories as gospel truth....

We have nothing to hide!





*Jambo* ladies and gentlemen. My name is Mandy and she is my friend Fanny.

*Jambo!!*

**MEDIA  
BRIEFING**

**MEDIA**

We came to Kenya from South Africa. We are products of modern biotechnology.

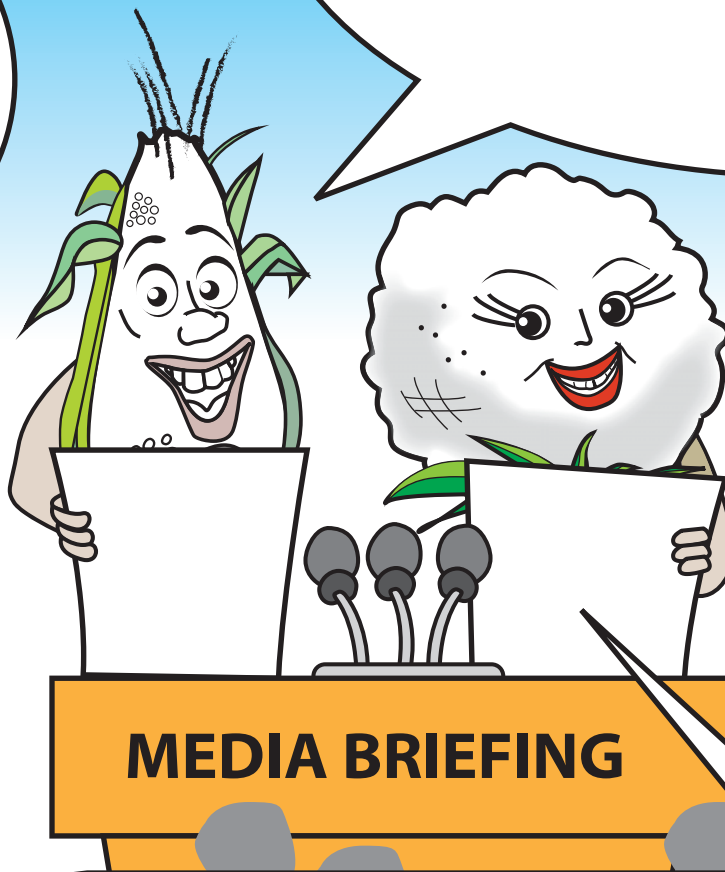
Modern biotechnology is a collection of scientific tools that use living organisms to improve plants and animals in a process called genetic improvement. Through advancement in technology, products like us came into being.

Farmers in Kenya love growing maize on their farms. I am not any different from my friends out there in appearance, taste or even nutritional value. The only difference is I am more resistant to insect pests.



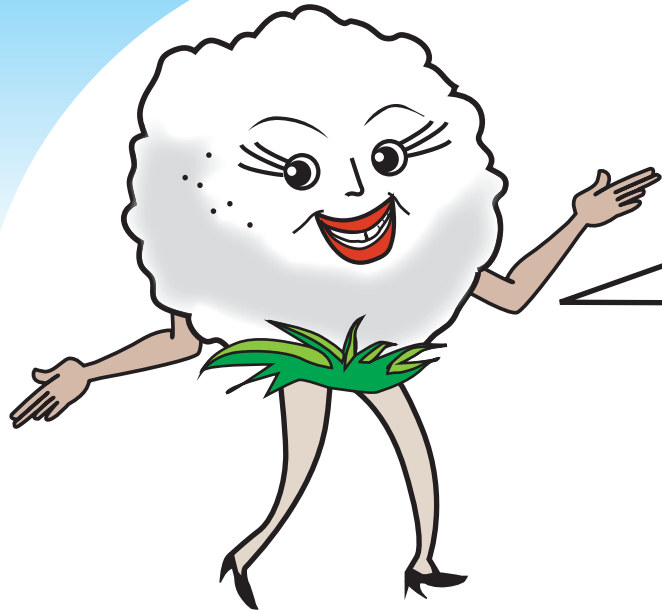
Our genetic make-up has been improved to make us perform better in the farms.

I am able to resist pests such as stem borers that destroy my friends out there.

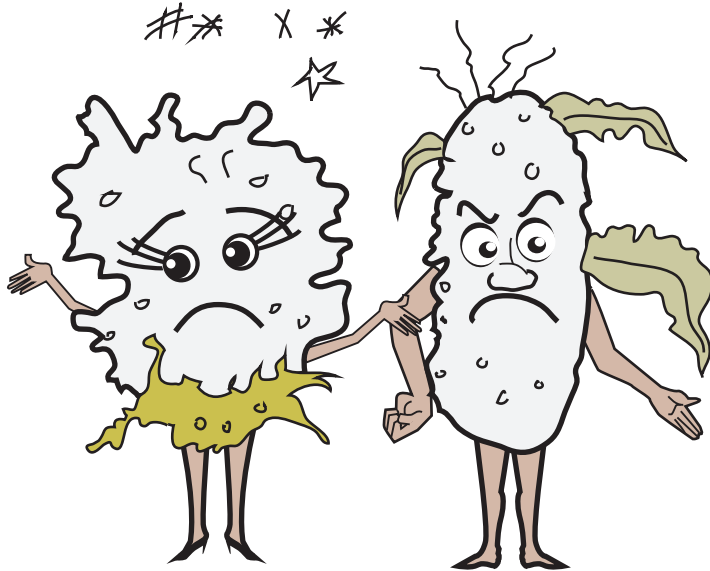


## MEDIA BRIEFING

The unique genes in me make my bolls soft, big and fluffier. I am able to resist pests such as bollworms that attack many of my friends out there. Farmers use fewer insecticides on me and I am able to grow in tough weather conditions.



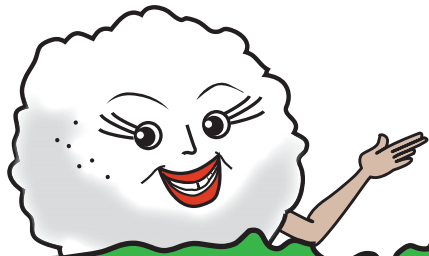
Before we were genetically improved, it was a great struggle to survive pests and diseases that made us look miserable. Our farmers suffered poor harvests every year.





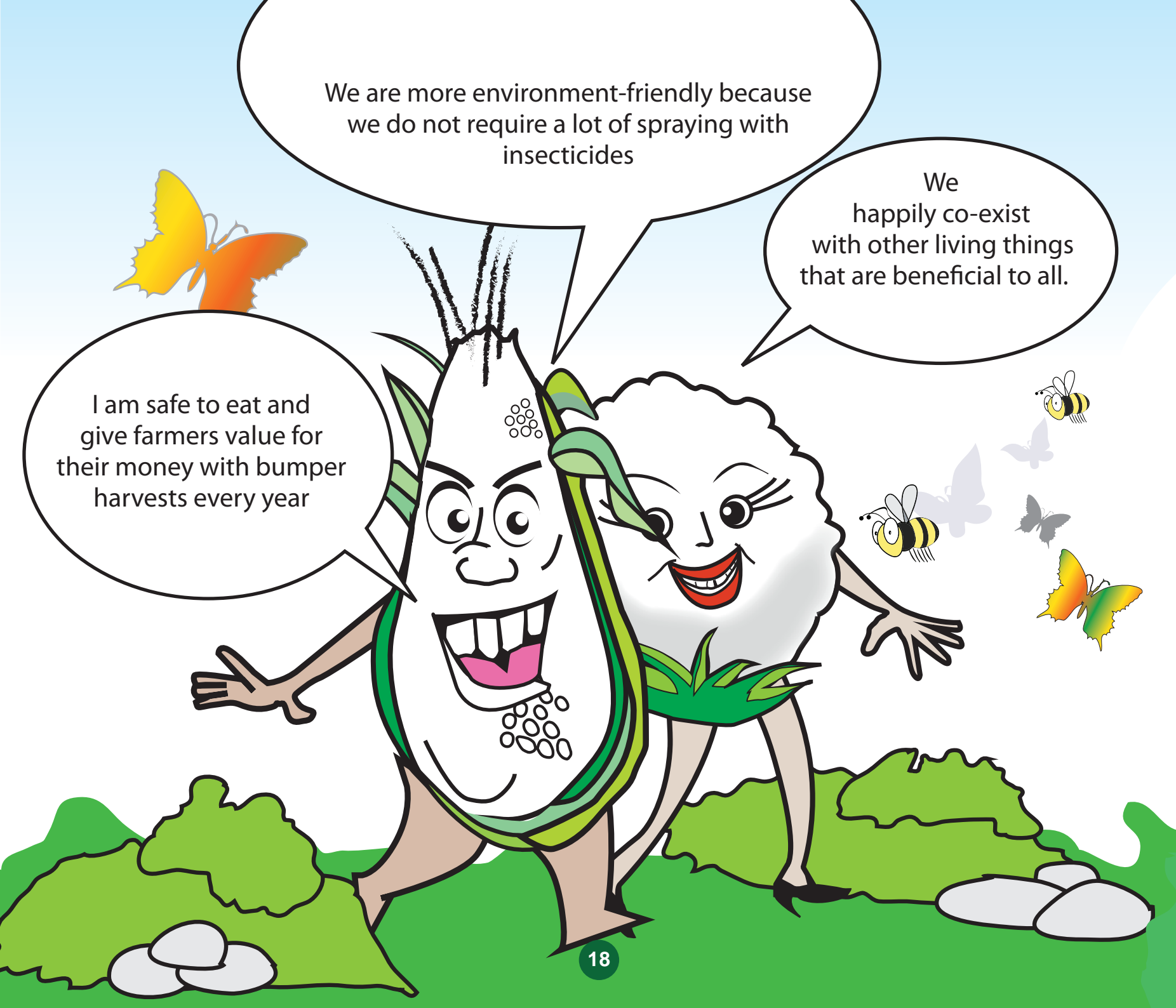
Our growers now love us. We are grown in many parts of the world.

In Africa, you will find us in Egypt, Burkina Faso and South Africa.



This is getting more and more interesting...






We are more environment-friendly because we do not require a lot of spraying with insecticides

We happily co-exist with other living things that are beneficial to all.

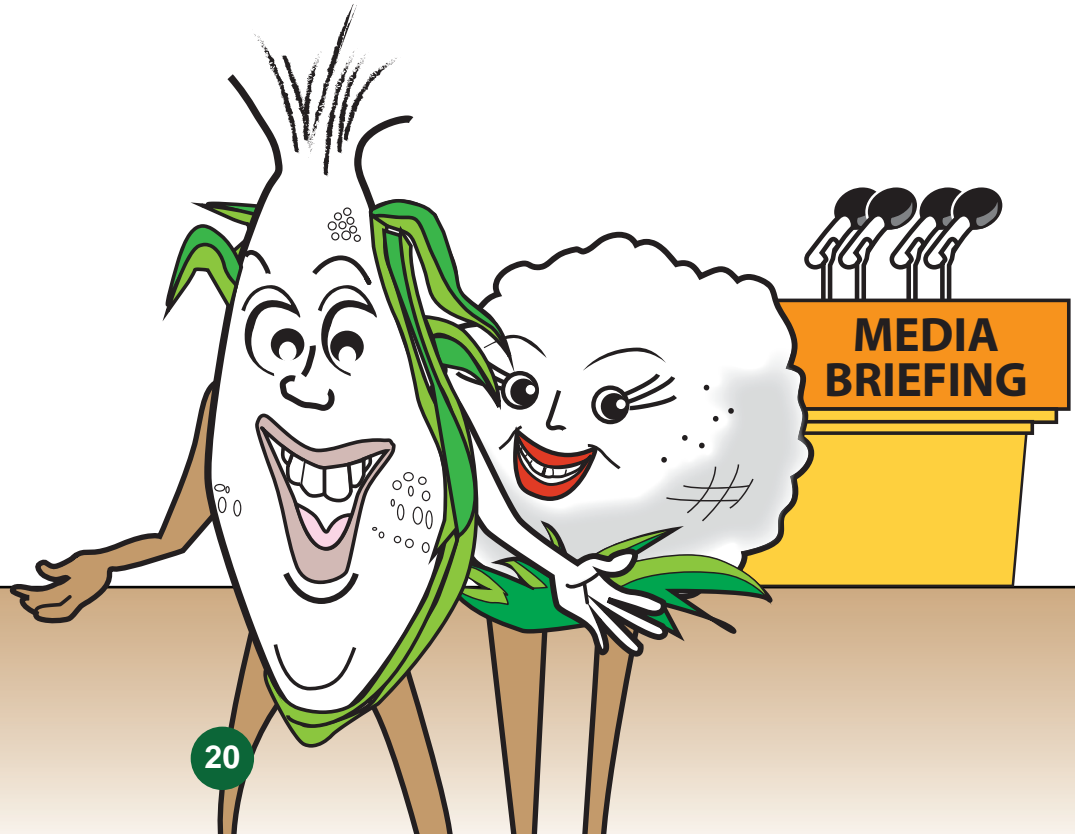
I am safe to eat and give farmers value for their money with bumper harvests every year



Genetically  
modified crops are safe to  
use having undergone many rigorous  
safety tests by international and national  
regulatory authorities.

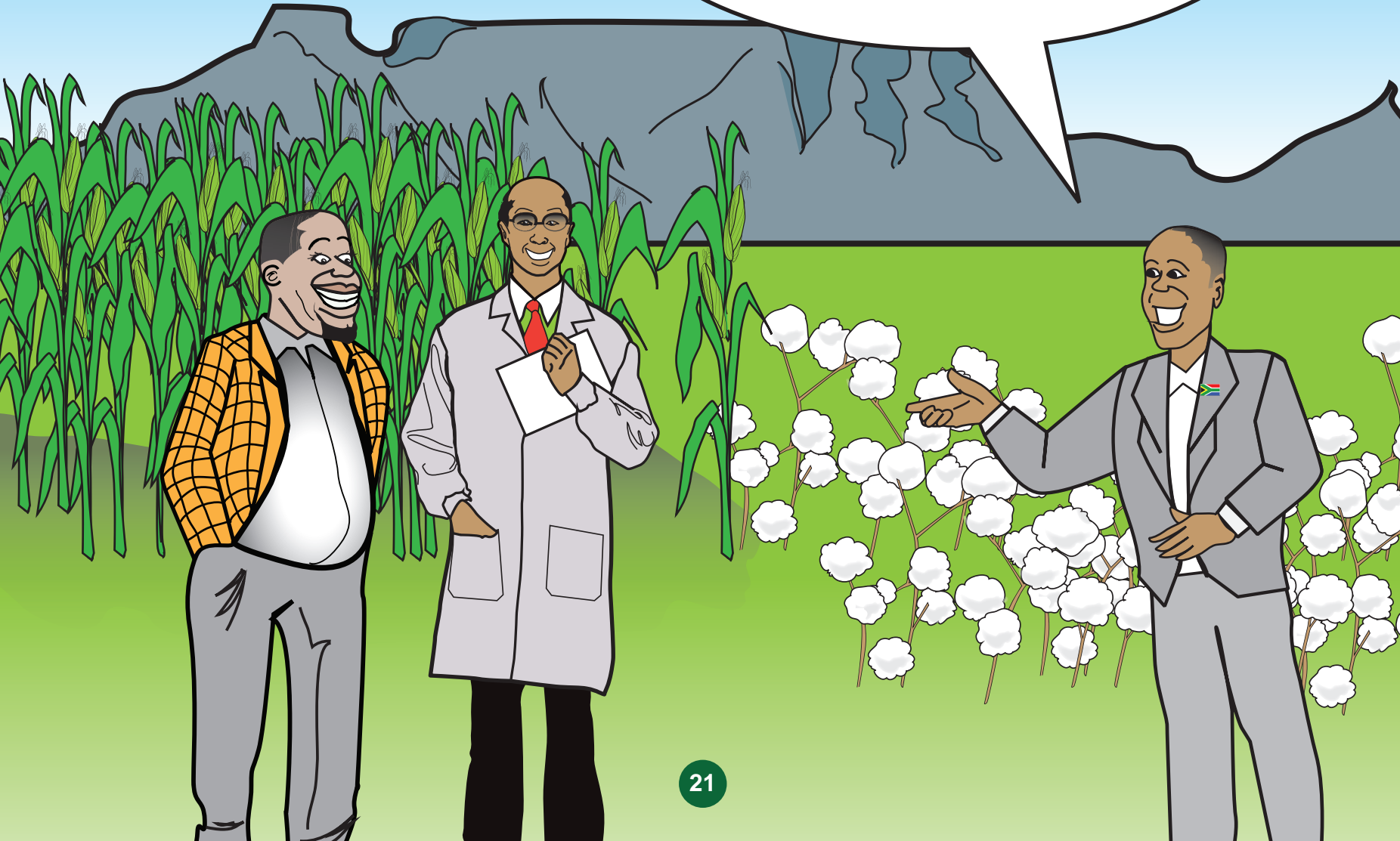
**MEDIA**

I had so many misconceptions  
about genetically modified crops —  
just like millions of other Kenyans out there.  
Now I know better.



After the evening news bulletin, Bwana Mheshimiwa flies out to South Africa and Burkina Faso on a fact-finding mission where he meets government officials, scientists and farmers.

We have been growing GM crops in South Africa since 1998. We have more than 2,000,000 hectares of land under GM crops.



In Burkina Faso...

Our yields and income have increased

We now use less pesticides and our health has improved.

We labour less on cotton and now have more time to attend to other crops.



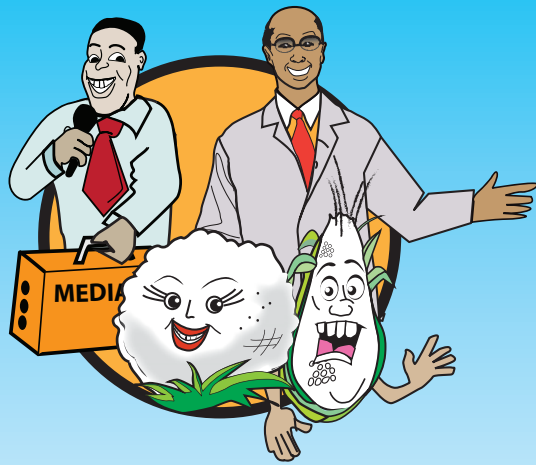


On his return to Kenya, Bwana Mheshimiwa heads straight to the national research institute

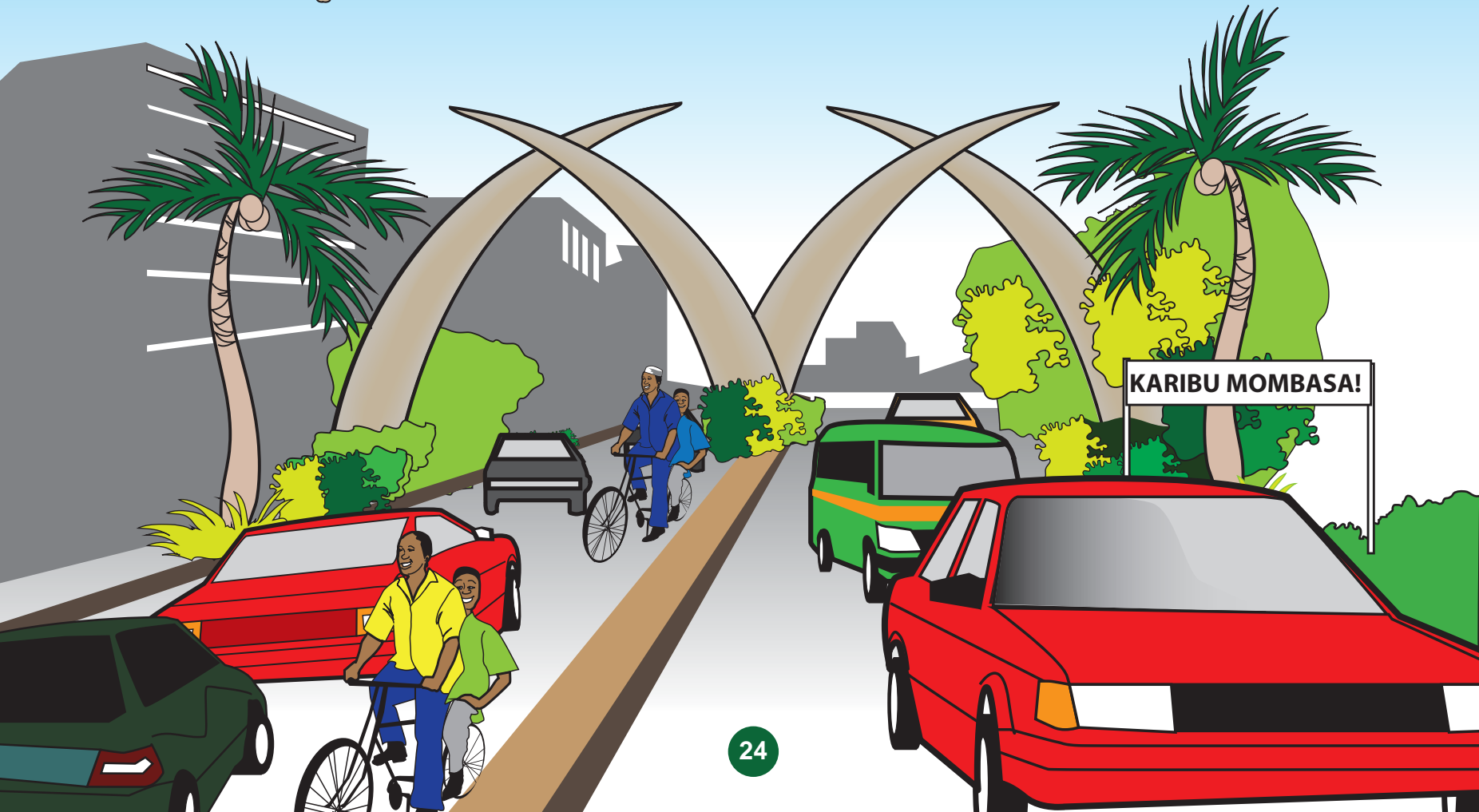
I have just returned from South Africa and Burkina Faso where GM crops are changing people's lives. How come Kenyans are not aware of their benefits?

It must be due to lack of awareness about the biotechnology. Perhaps Mandy and Fanny should tour the whole country . . .

Great idea! Information is power. Let Mandy and Fanny tell Kenyans the truth about GM crops.

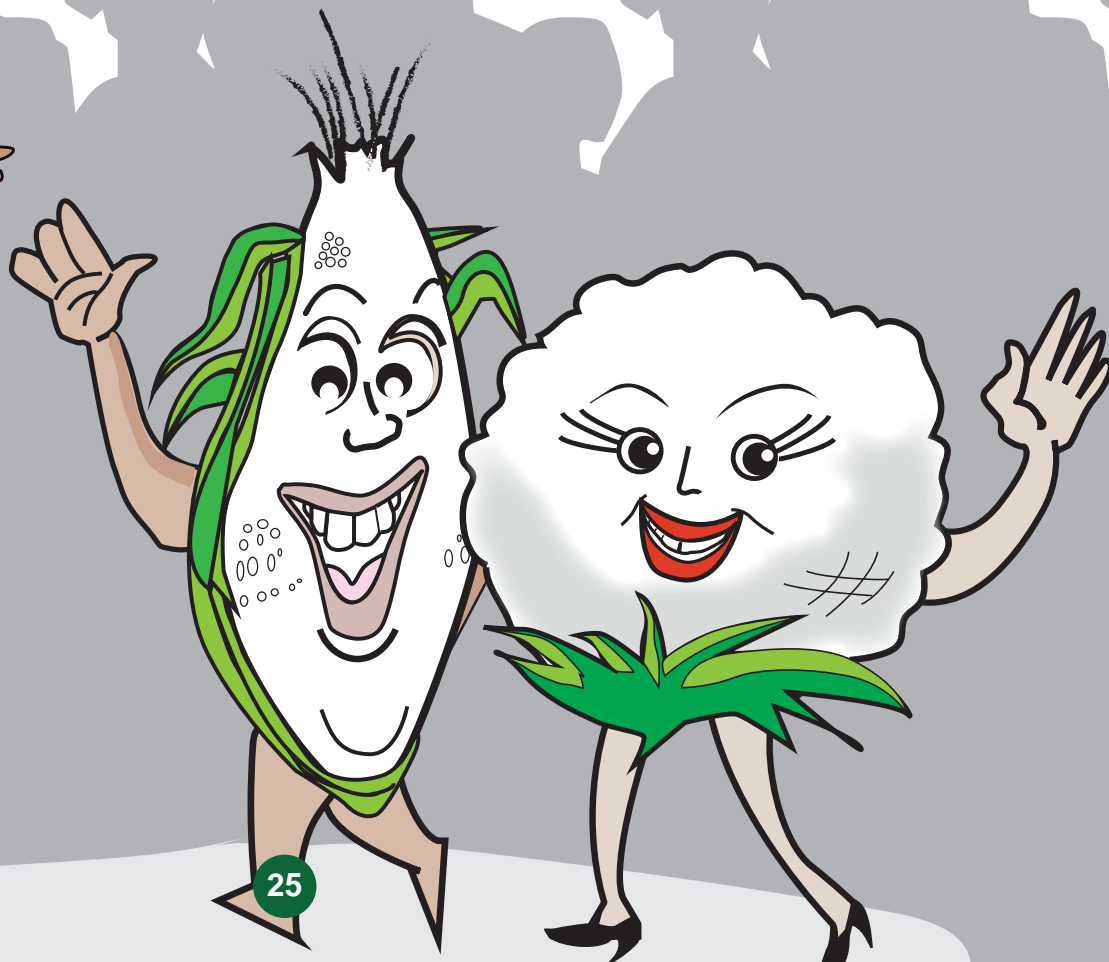


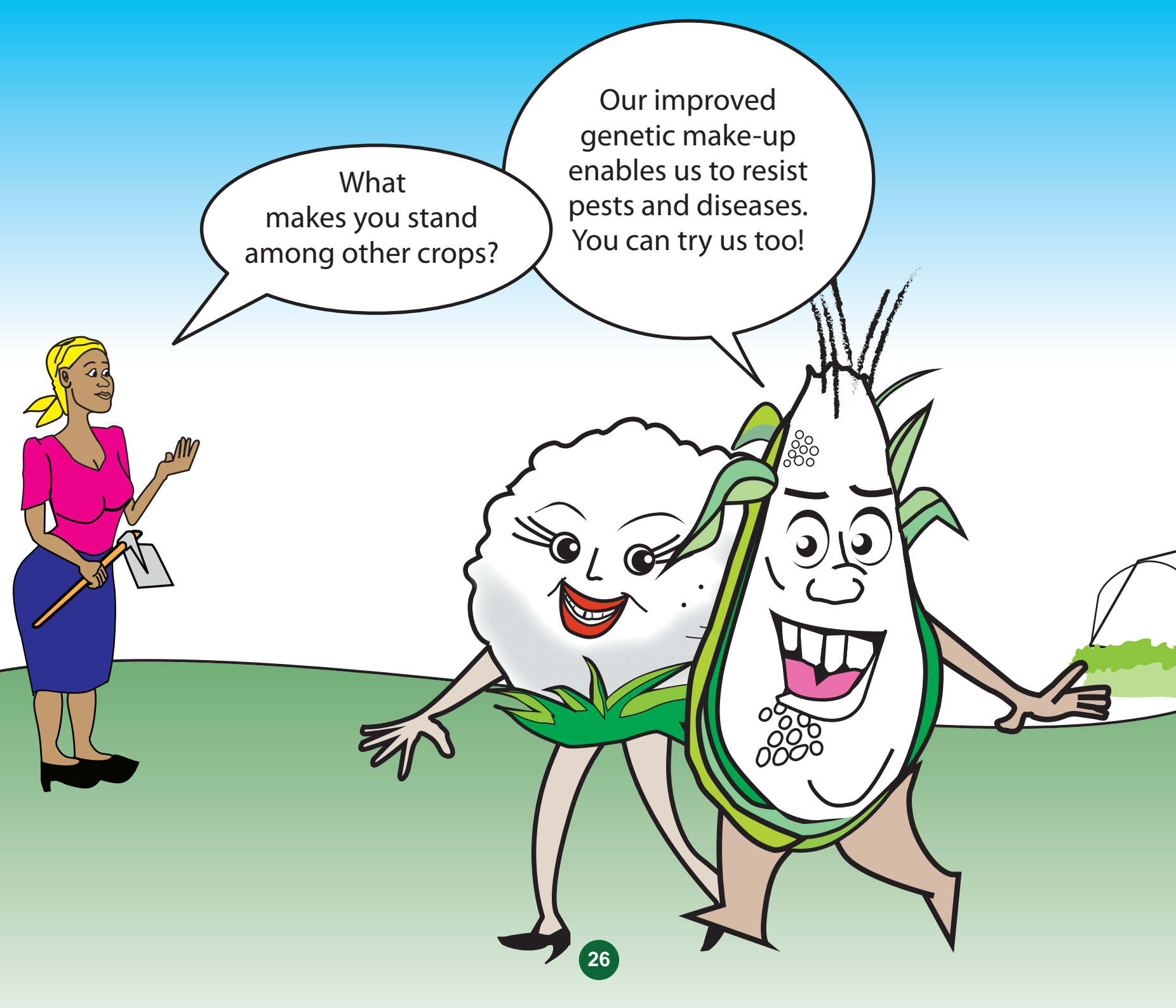
Professor Mimea, Mandy and Fanny start the national tours ...





*Hamjambo!* I am Professor Mimea. I want to introduce you to Mandy and his beautiful, fluffy friend, Fanny. They are genetically modified crops. You can ask them all the questions you have about GMOs.



A woman with a yellow headscarf, wearing a pink short-sleeved top and a blue skirt, stands on the left holding a clipboard and a pencil. She is looking towards two anthropomorphic corn cobs on the right. The corn cobs have human-like faces, arms, and legs. One is a white cob with a green husk, and the other is a yellow cob with a green husk. They are both smiling and gesturing with their hands. The background is a simple landscape with a green field and a blue sky.

What makes you stand among other crops?

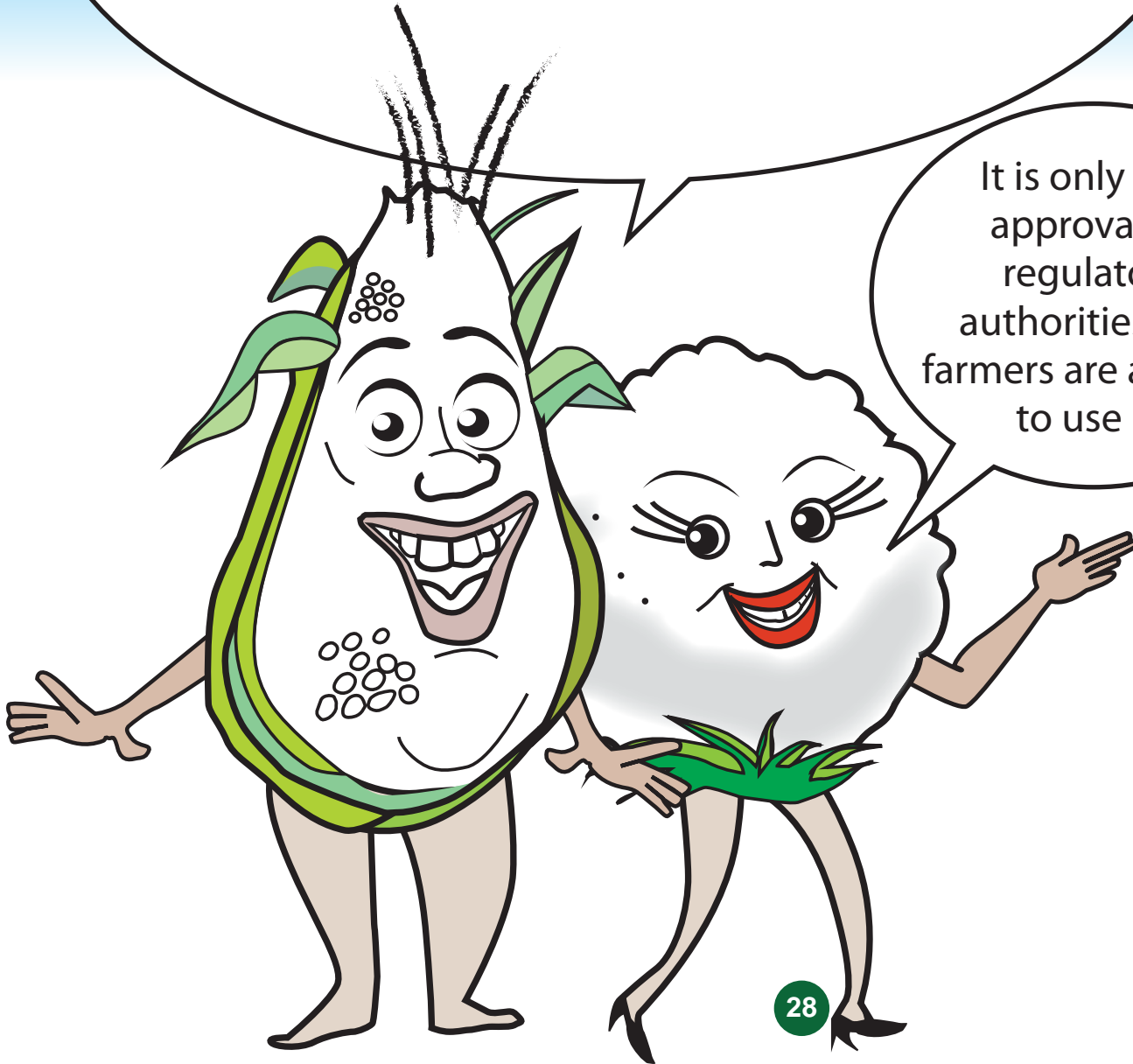
Our improved genetic make-up enables us to resist pests and diseases. You can try us too!

C'mon guys just check us out!

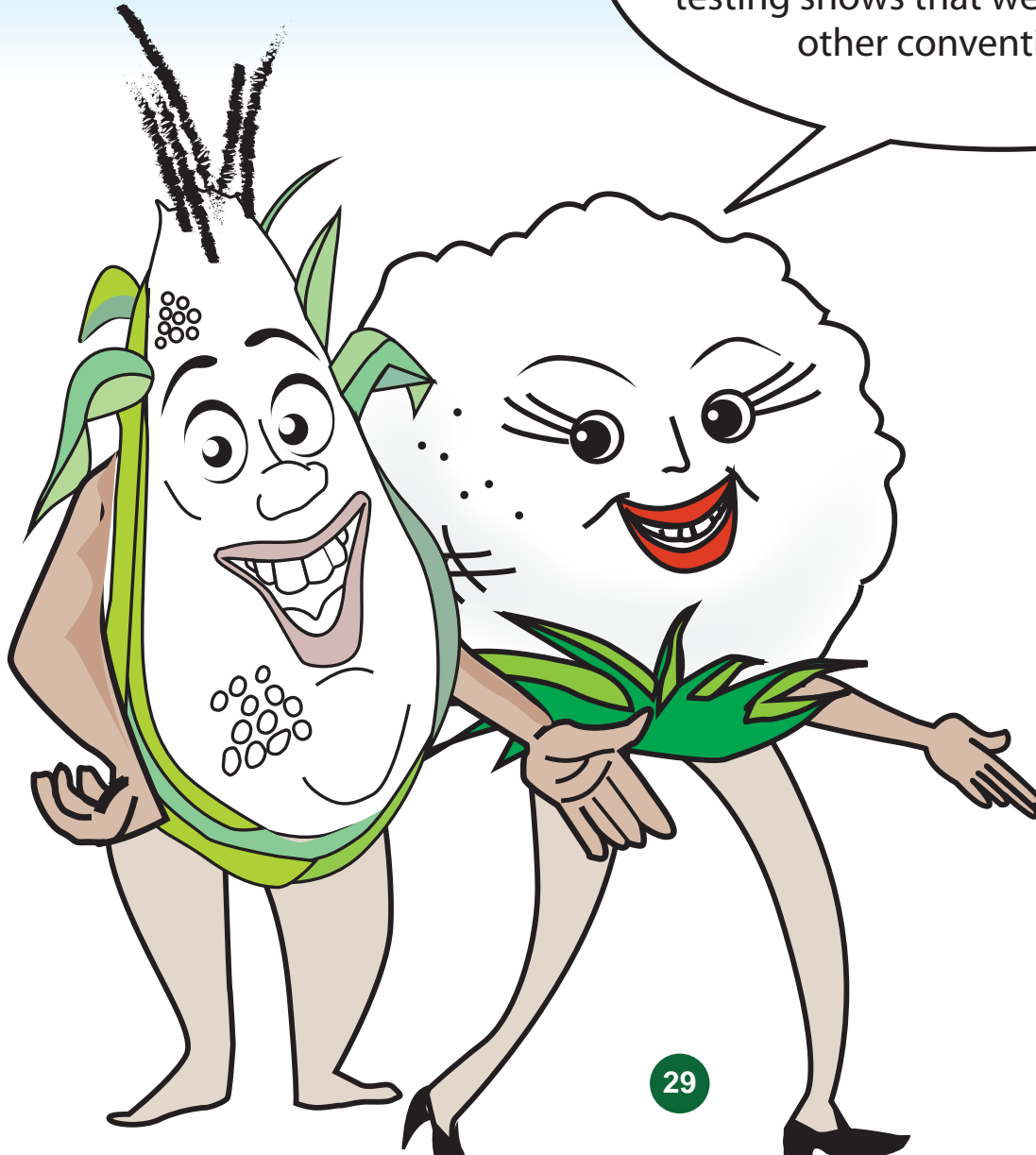


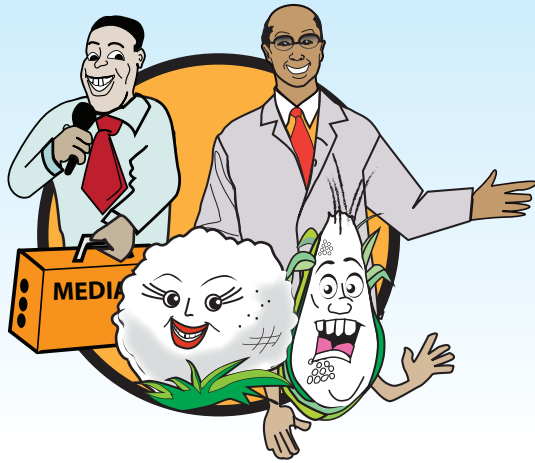
We have been screened for environmental safety, then undergone confined field trials before finally being grown in open fields. Scientists in Kenya are following the same international procedures.

It is only after approval by regulatory authorities that farmers are allowed to use us

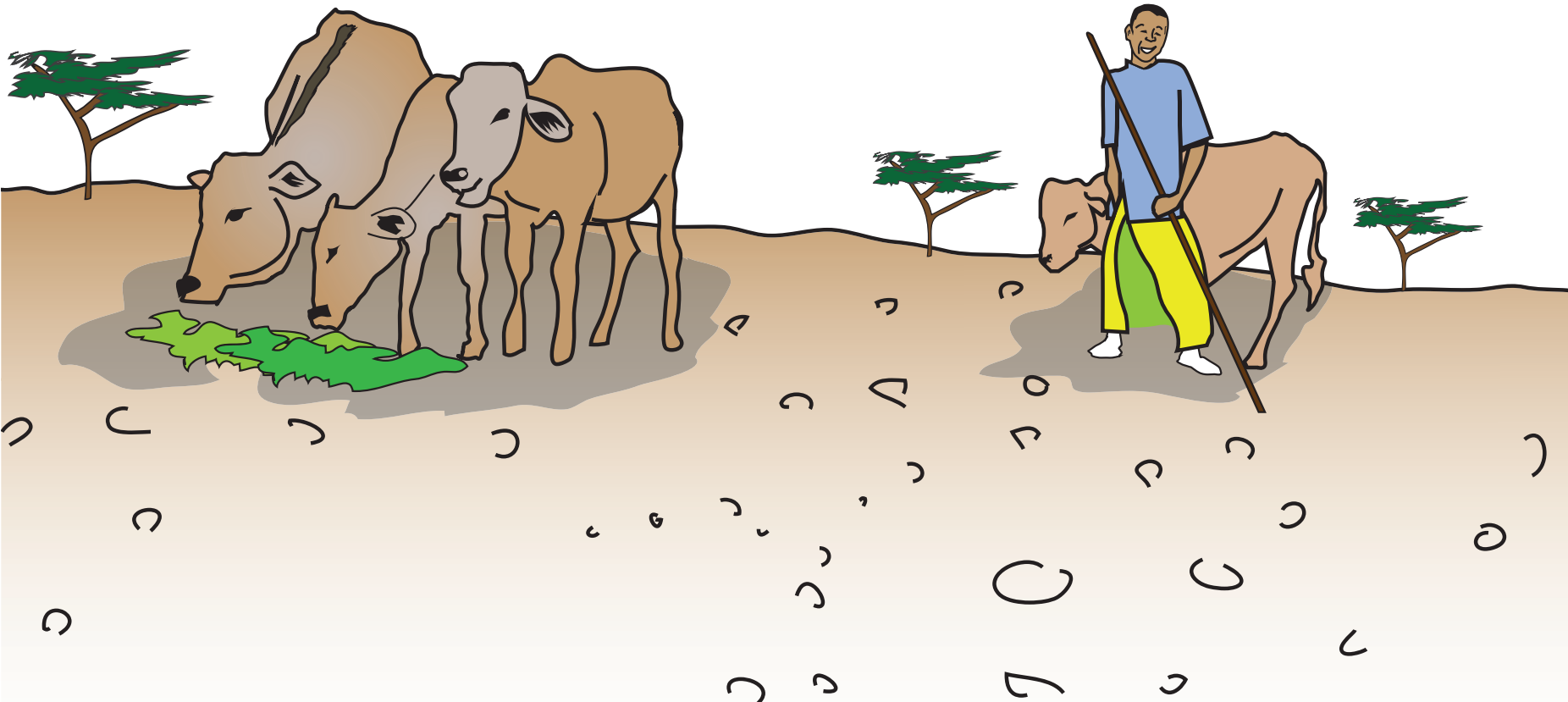


International organizations such as WHO and FAO have endorsed us for commercial use. Extensive scientific testing shows that we are very similar to other conventional crops.



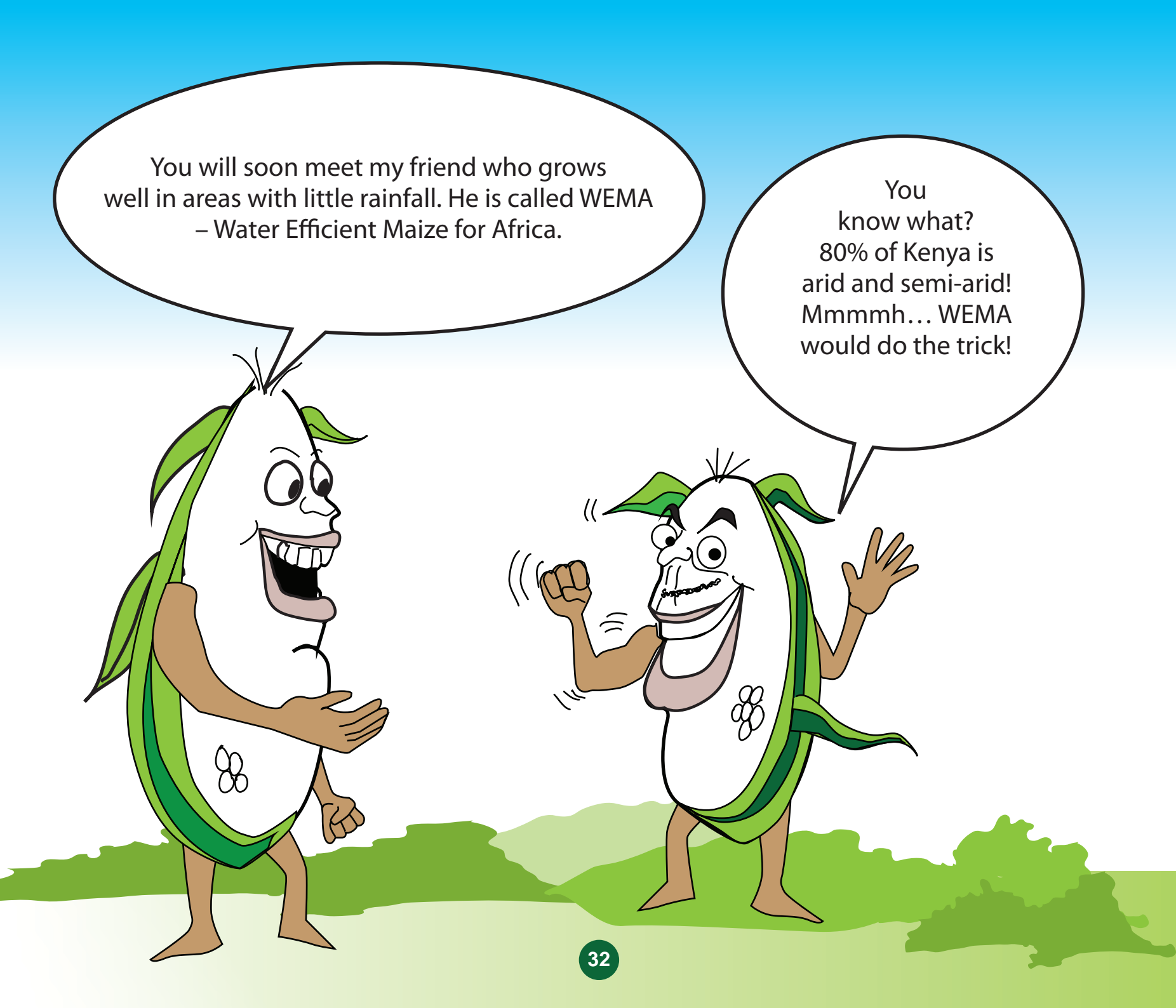


Mandy and Fanny tour Eastern and Central Kenya ...





**KENYA AGRICULTURAL  
RESEARCH INSTITUTE - KIBOKO  
GM maize field trials**



You will soon meet my friend who grows well in areas with little rainfall. He is called WEMA – Water Efficient Maize for Africa.

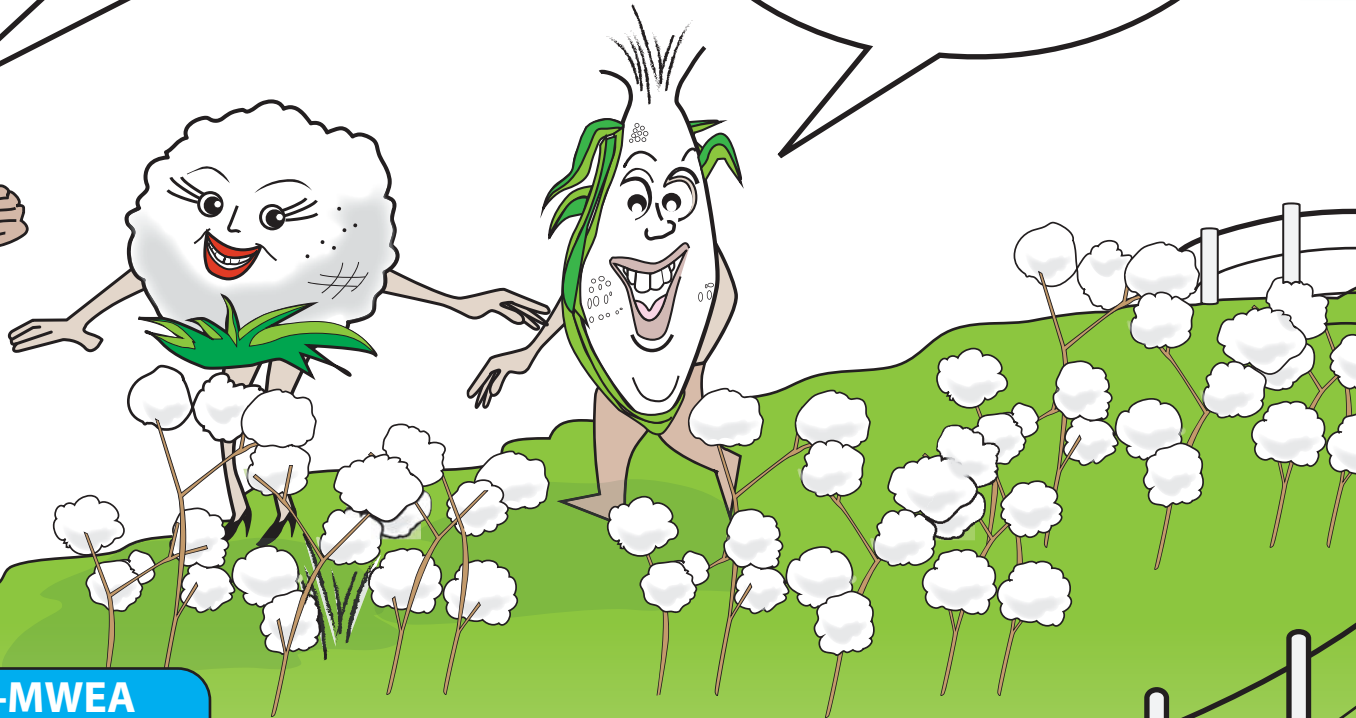
You know what? 80% of Kenya is arid and semi-arid! Mmmmh... WEMA would do the trick!




In Mwea...

We eagerly await the fluffy cotton. Then we will have our own cotton clothes, our collapsed textile factories will be revived. And everyone will afford new clothes.

My genetically modified cotton friends are doing well down here in Mwea. Soon I will be with them in your fields and in your textile industry.



**KARI-MWEA**  
Bt Cotton Field Trial

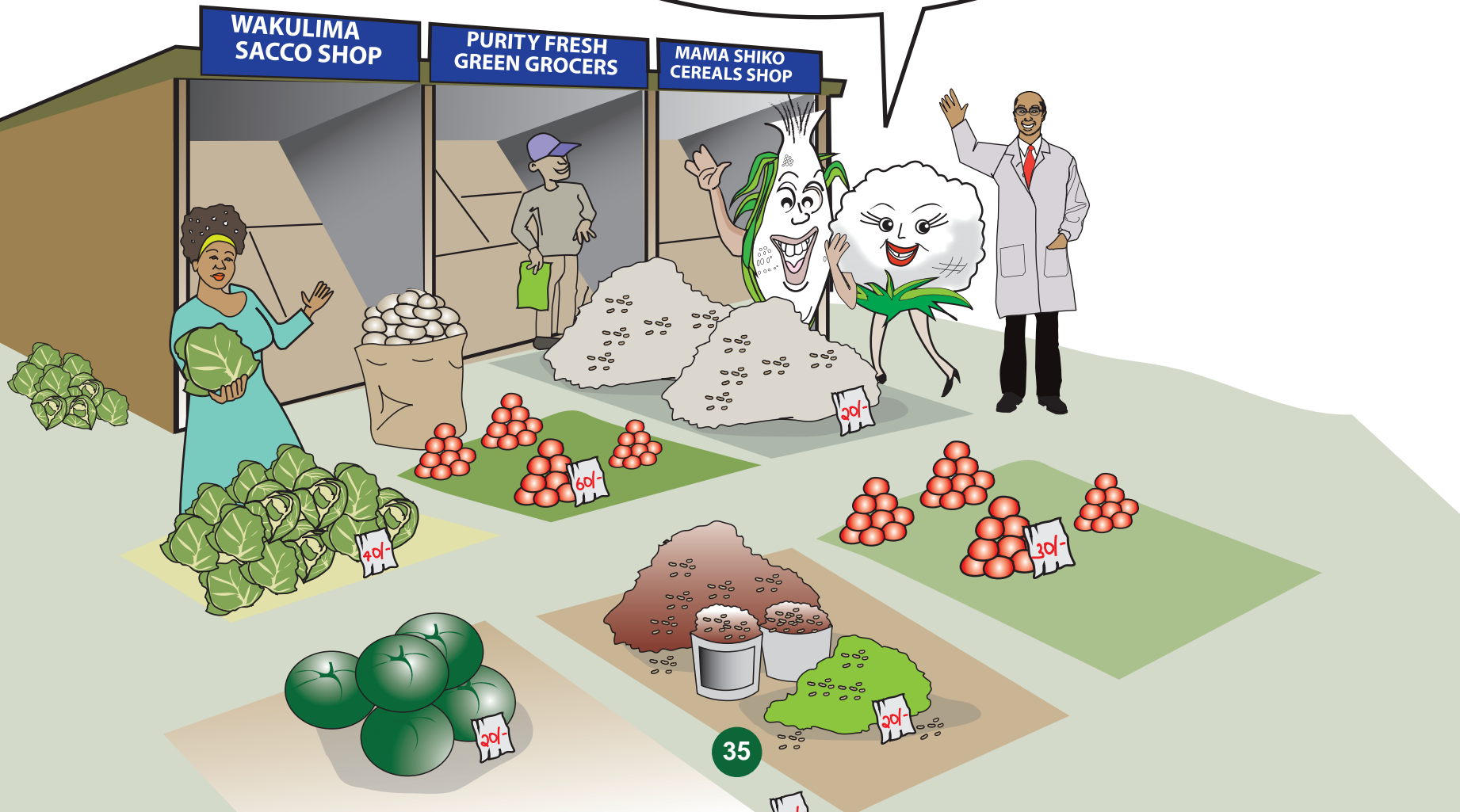


In Mt Kenya region, we grow maize, tea, coffee and miraa. How will we benefit from growing GM crops?



If you grow us, you will reduce the costs of buying insecticides and labour. Look how strong and healthy we are. You will love us in your farms.

I understand you are highly enterprising and want maximum returns from your investments. Invest in us. Other traders have done so and are raking in big profits.





How about the crops we grow for export... Will they be marketable in Europe if I grow them alongside GM crops?

Yes

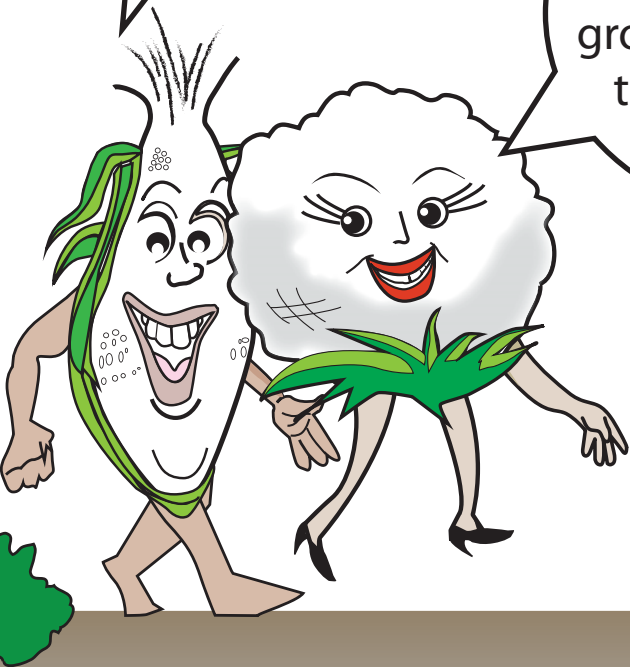
European countries such as Czech Republic, Germany, Spain, and Sweden grow GM crops. They also import GMOs from other countries such as Argentina and Brazil.

That's right!  
We can even increase the exports ...

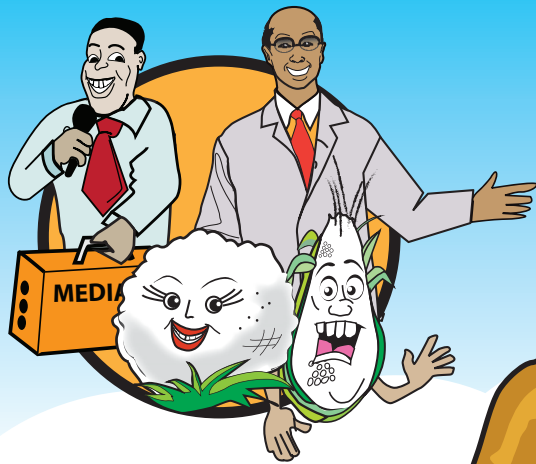
Besides  
maize and cotton,  
other genetically  
modified crops in the  
market are soybean and  
canola, used to make edible  
oil. There are also GM  
drugs such as insulin for  
diabetes.

All  
these are  
commercially  
grown and traded in  
the international  
market.

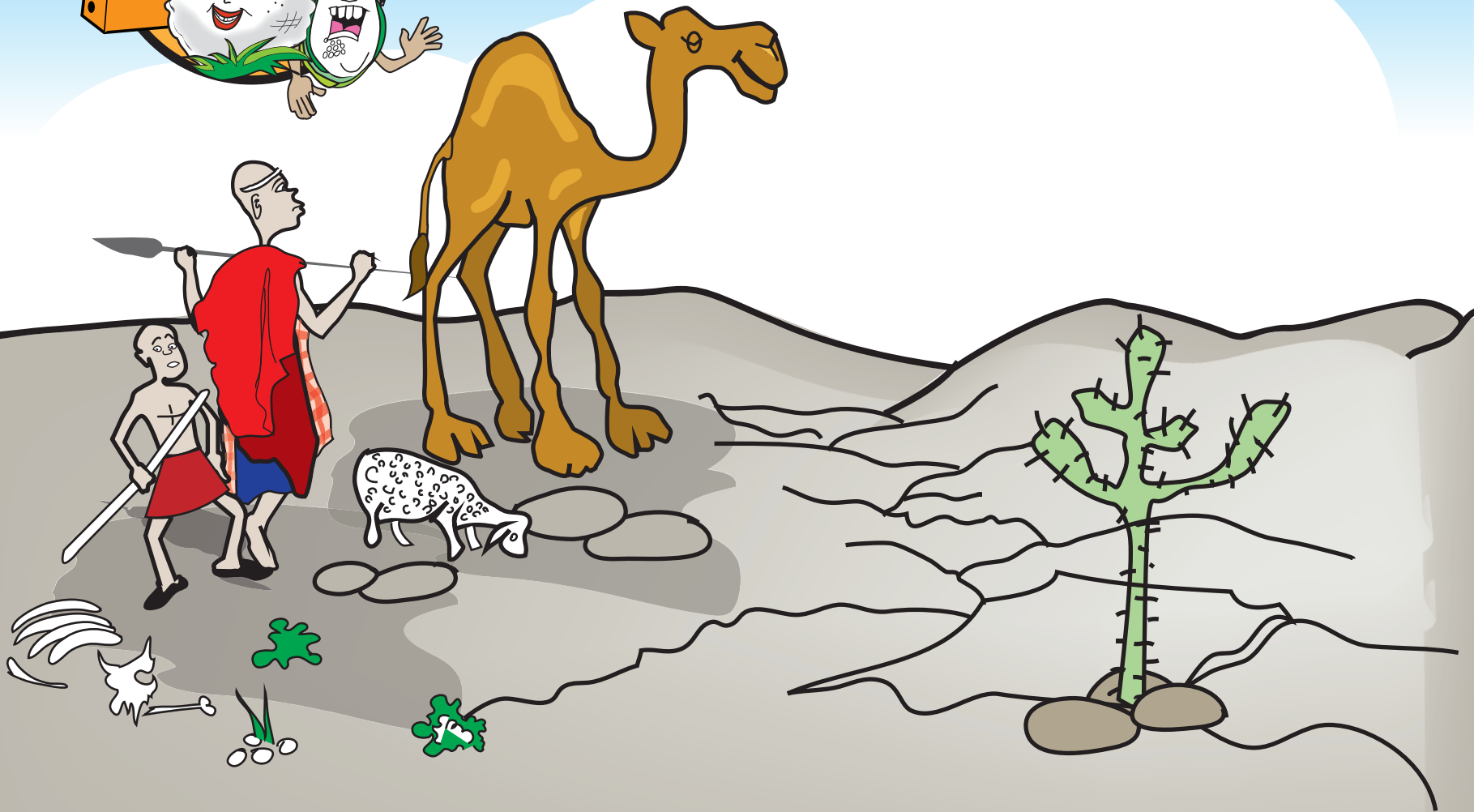
FARMERS SET TO BENEFIT  
FROM GM CROPS





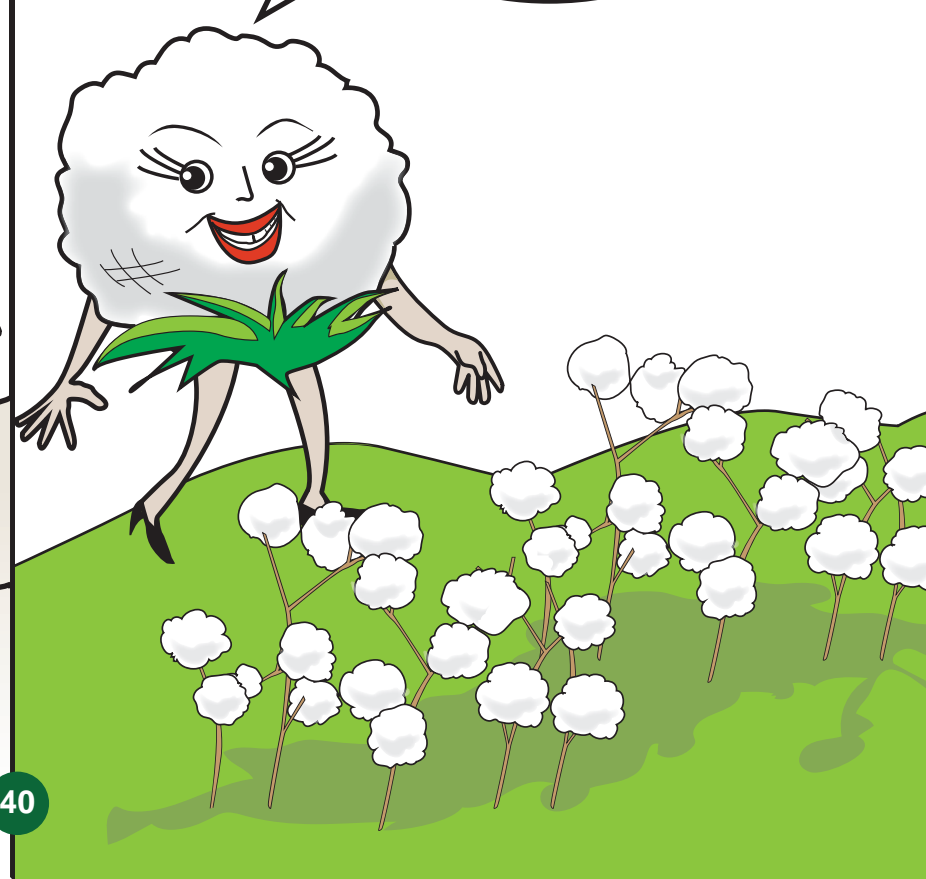
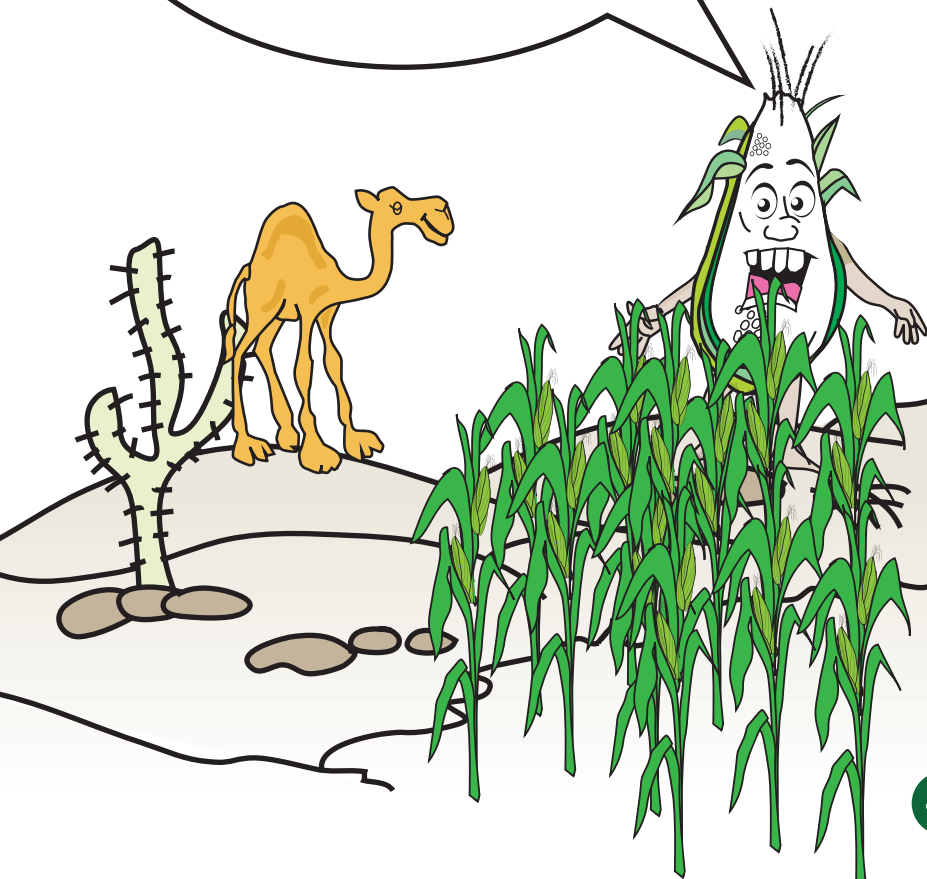


In North Eastern, Mandy and Fanny see opportunities for bumper harvests



Oh, what an underutilised land! Heard of my friend WEMA in Kiboko? You can harvest maize in plenty on this land and use the stalks as fodder for your elegant livestock

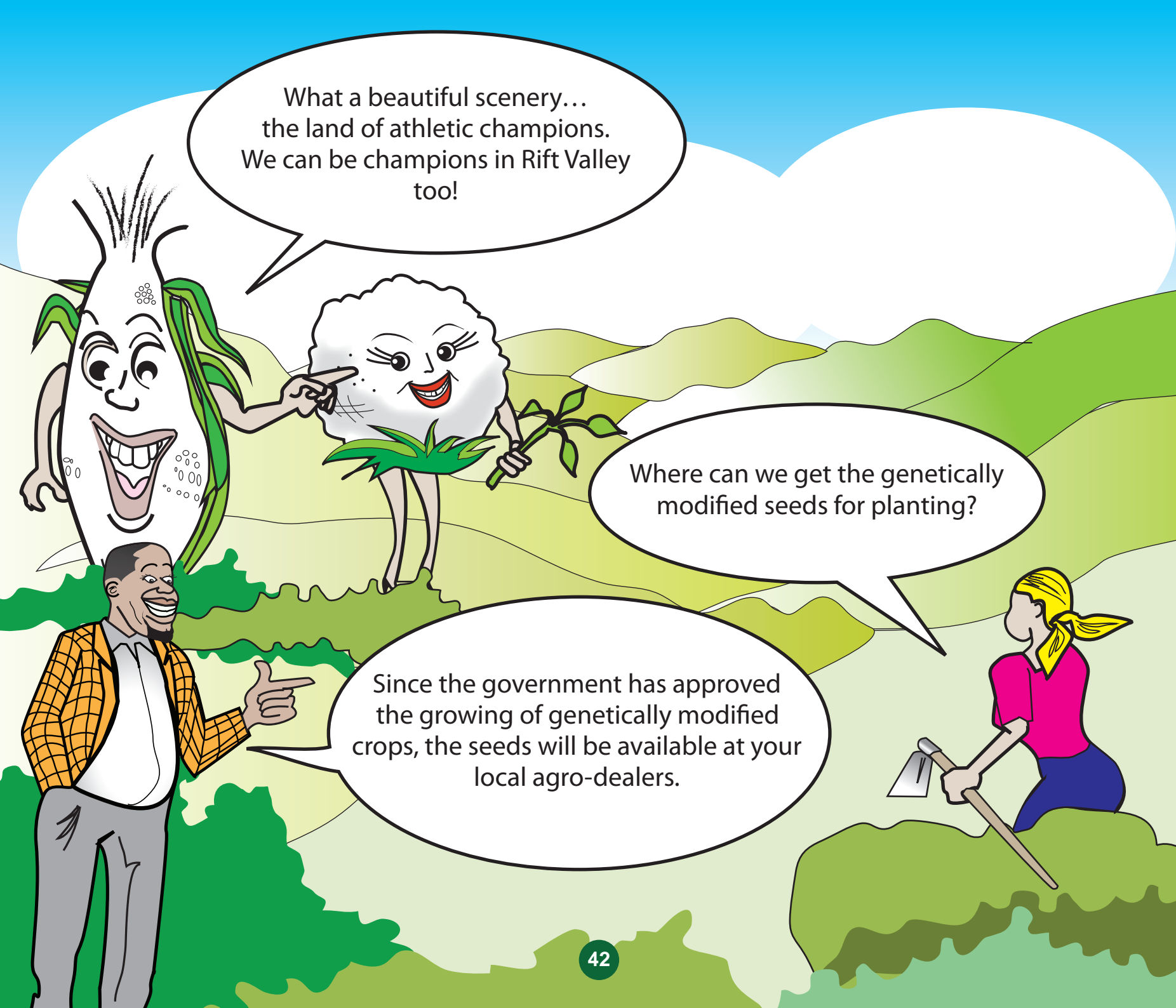
My genetically modified cotton friends in Mwea will thrive in the Bura Irrigation Scheme being revived here.





In Rift Valley...





What a beautiful scenery...  
the land of athletic champions.  
We can be champions in Rift Valley  
too!

Where can we get the genetically  
modified seeds for planting?

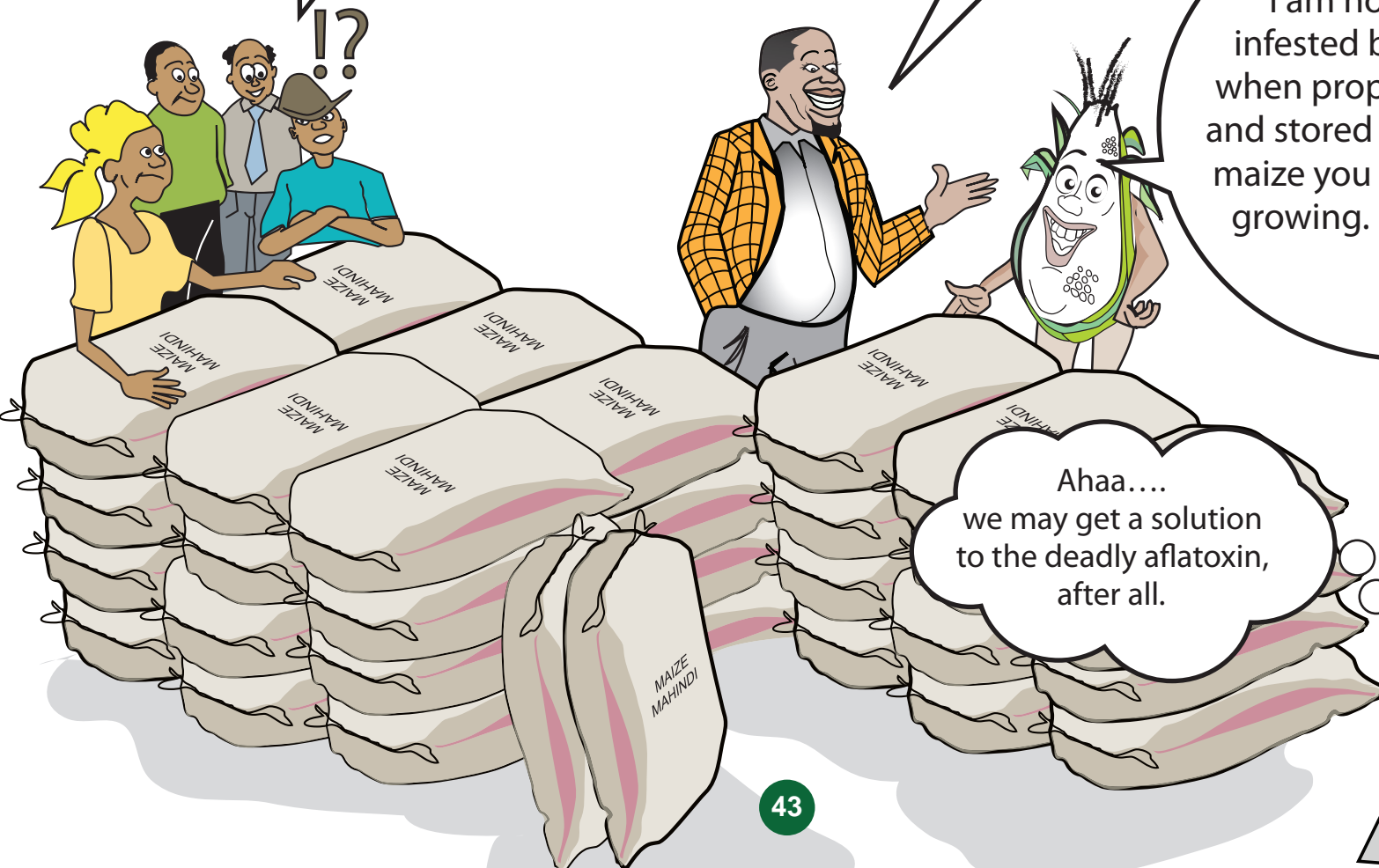
Since the government has approved  
the growing of genetically modified  
crops, the seeds will be available at your  
local agro-dealers.

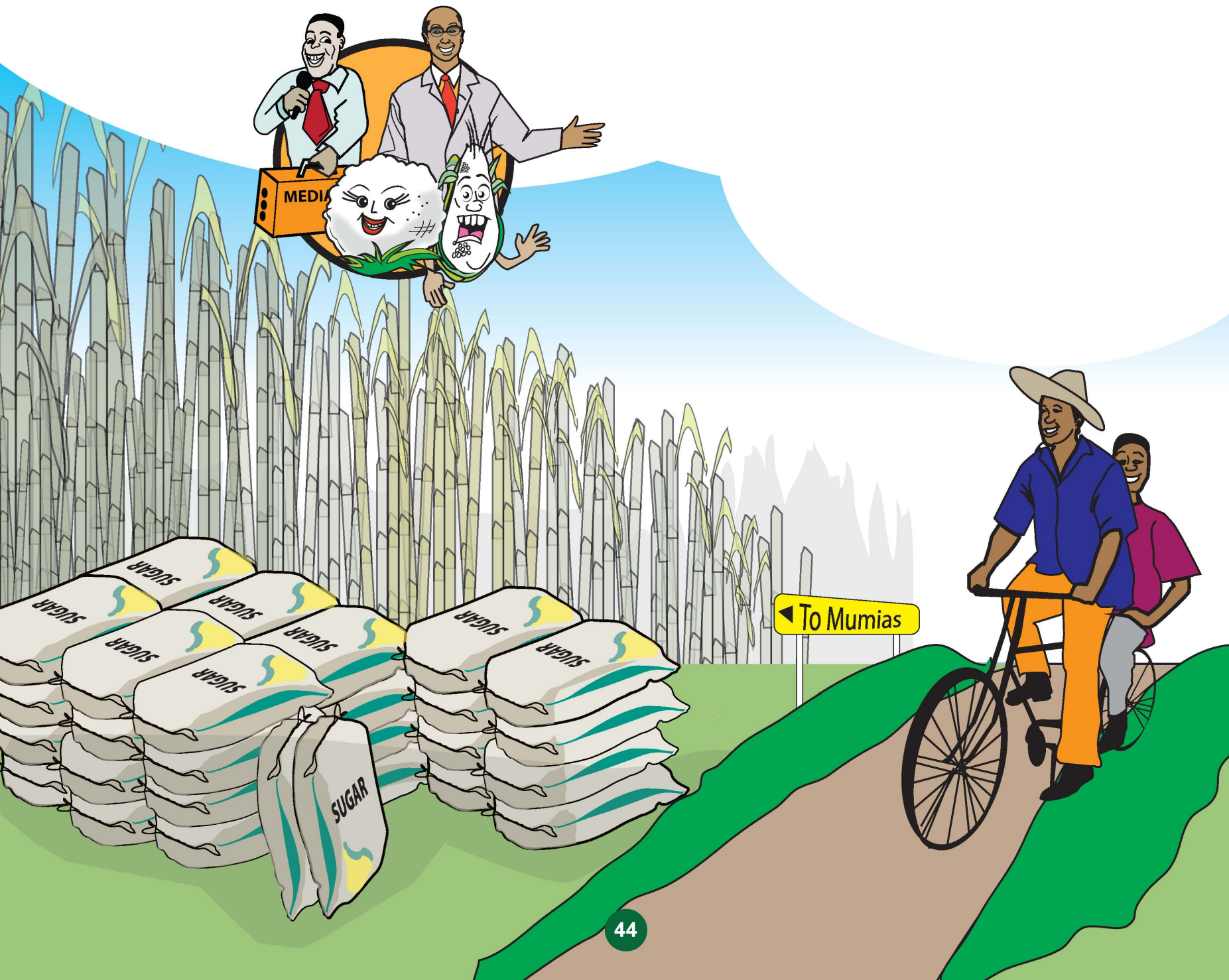
We produce many tonnes of maize every year, only to lack market. Mould destroys harvests in our stores. Where will we take the surplus if we grow GM maize?

Hmmm...I get your concern. This is a policy problem. I will speak with the Minister for Agriculture and the President. Many Kenyans don't have enough to eat.

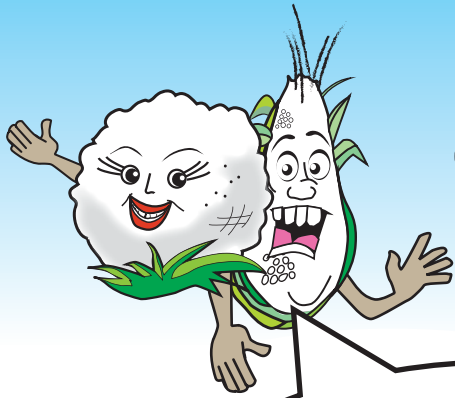
I am not infested by mould when properly dried and stored unlike the maize you are currently growing.

Ahaa.... we may get a solution to the deadly aflatoxin, after all.







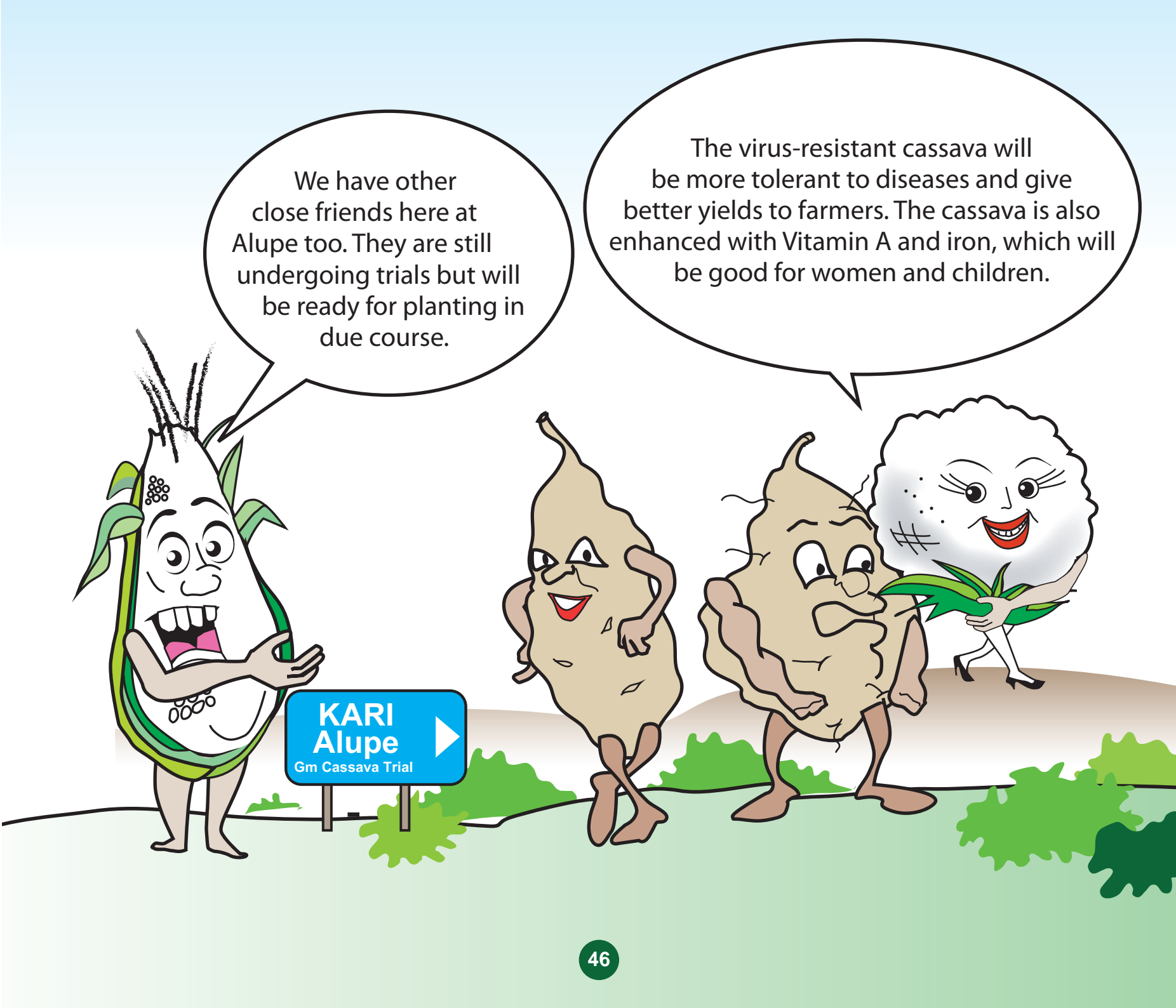


I wonder ...is genetically modifying crops playing God?



It is all about advancement in the science of biology. Scientists use new tools, knowledge and wisdom to develop improved crops that are high yielding, tolerant to pests and drought and are friendly to the environment.

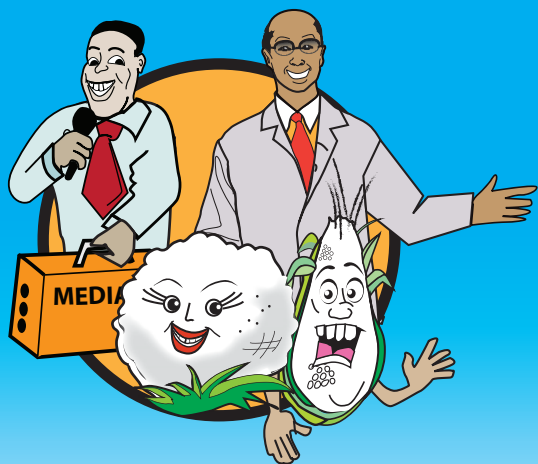




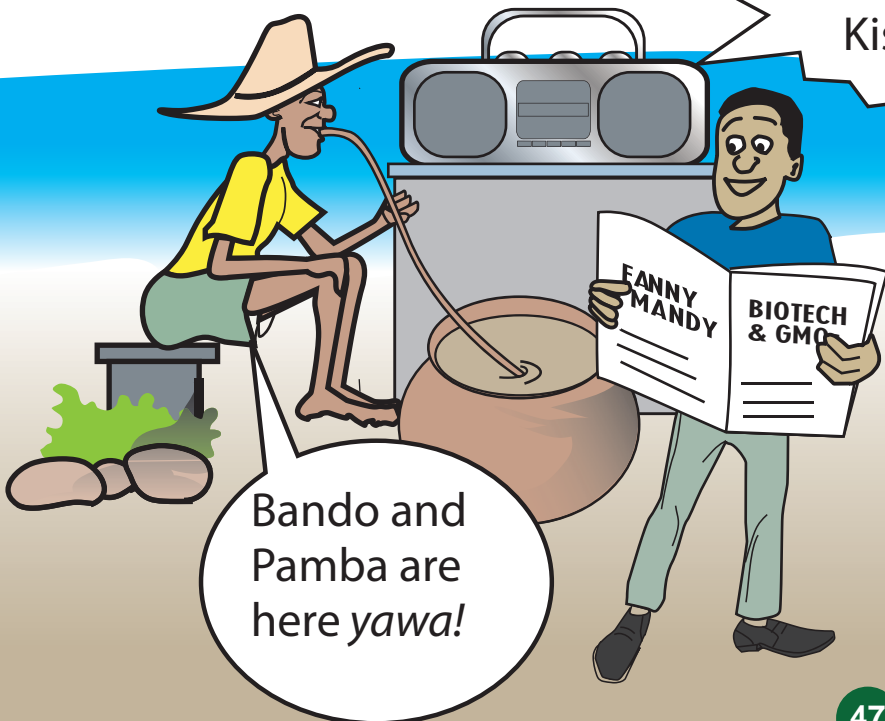
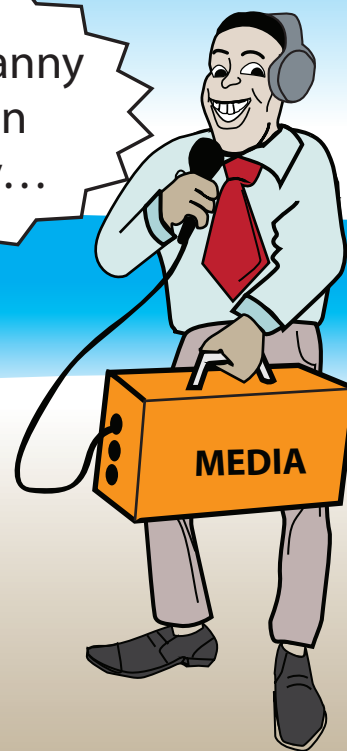
We have other close friends here at Alupe too. They are still undergoing trials but will be ready for planting in due course.

The virus-resistant cassava will be more tolerant to diseases and give better yields to farmers. The cassava is also enhanced with Vitamin A and iron, which will be good for women and children.

**KARI  
Alupe**  
Gm Cassava Trial



Mandy and Fanny  
are finally in  
Kisumu City...



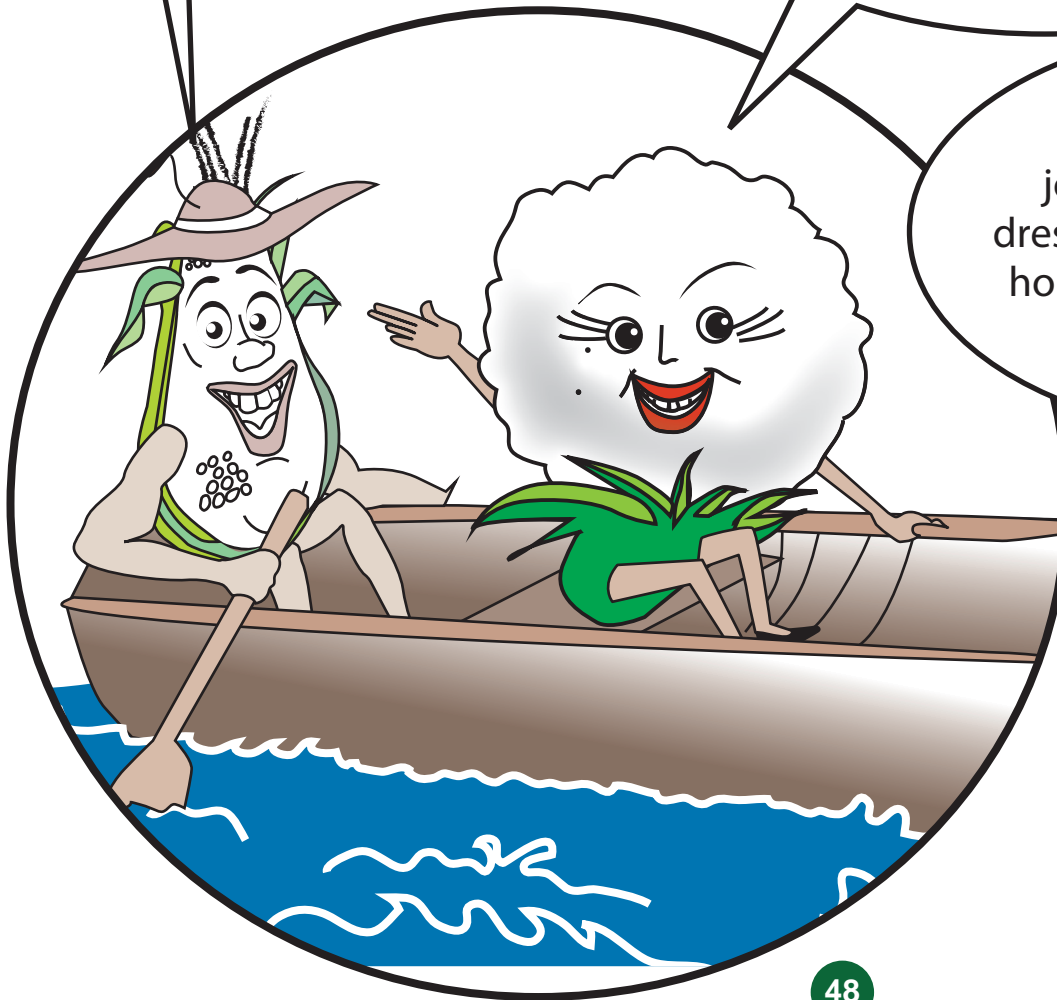
Bando and  
Pamba are  
here yawa!

Fanny, you have a great opportunity to grow here. The weather couldn't be better.

You are right, Mandy. The gains from cotton are great and will help improve the people's living standards.

This means more jobs and a lot of money to dress elegantly, build my dream home and take my children to better schools.

...and do I say!

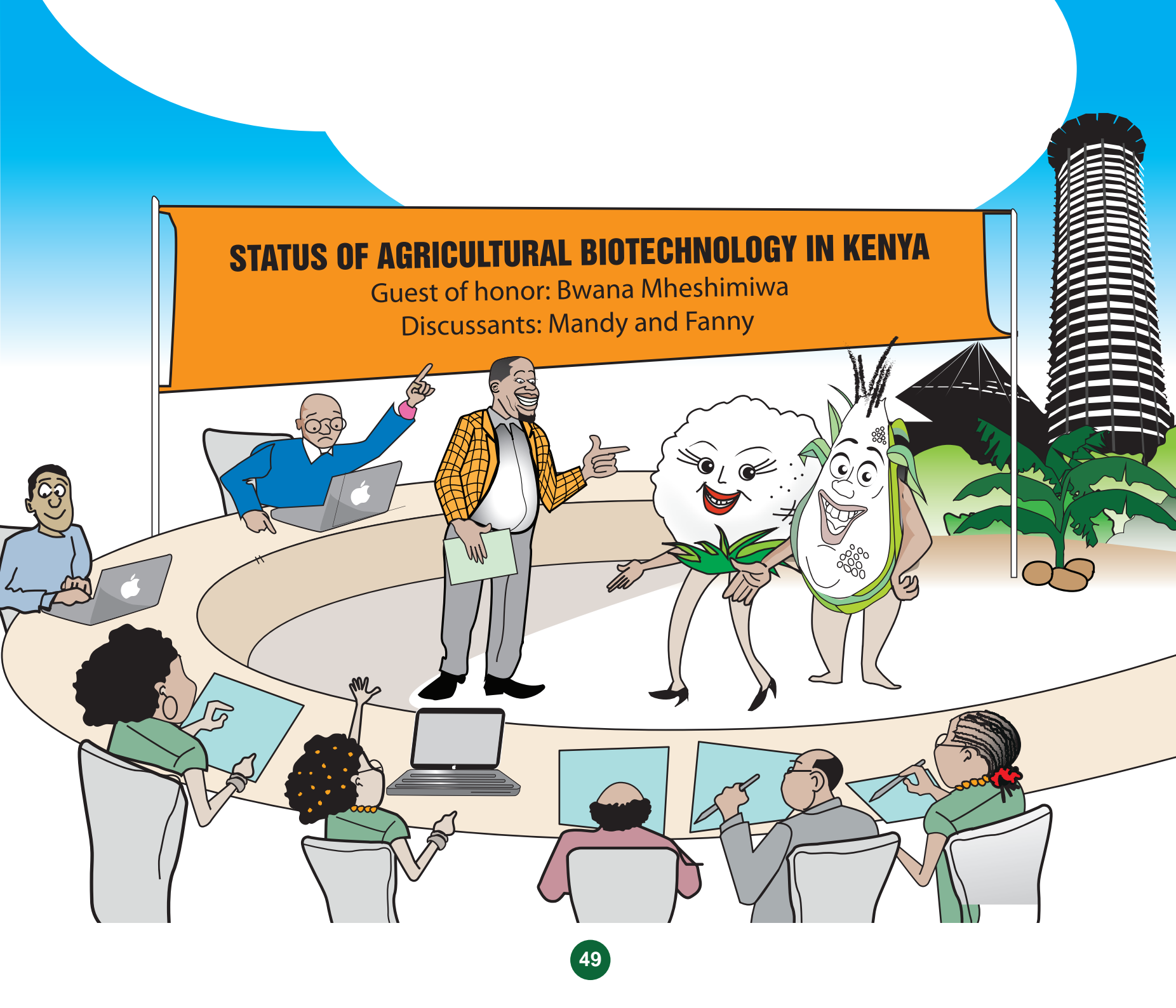




# STATUS OF AGRICULTURAL BIOTECHNOLOGY IN KENYA

Guest of honor: Bwana Mheshimiwa

Discussants: Mandy and Fanny



*Hamjambo!* Ladies and gentlemen,  
this is a recap of our tour...

Provinces toured

- Coast
- Eastern
- Central
- Rift Valley
- Western
- Nyanza
- Nairobi
- North Eastern

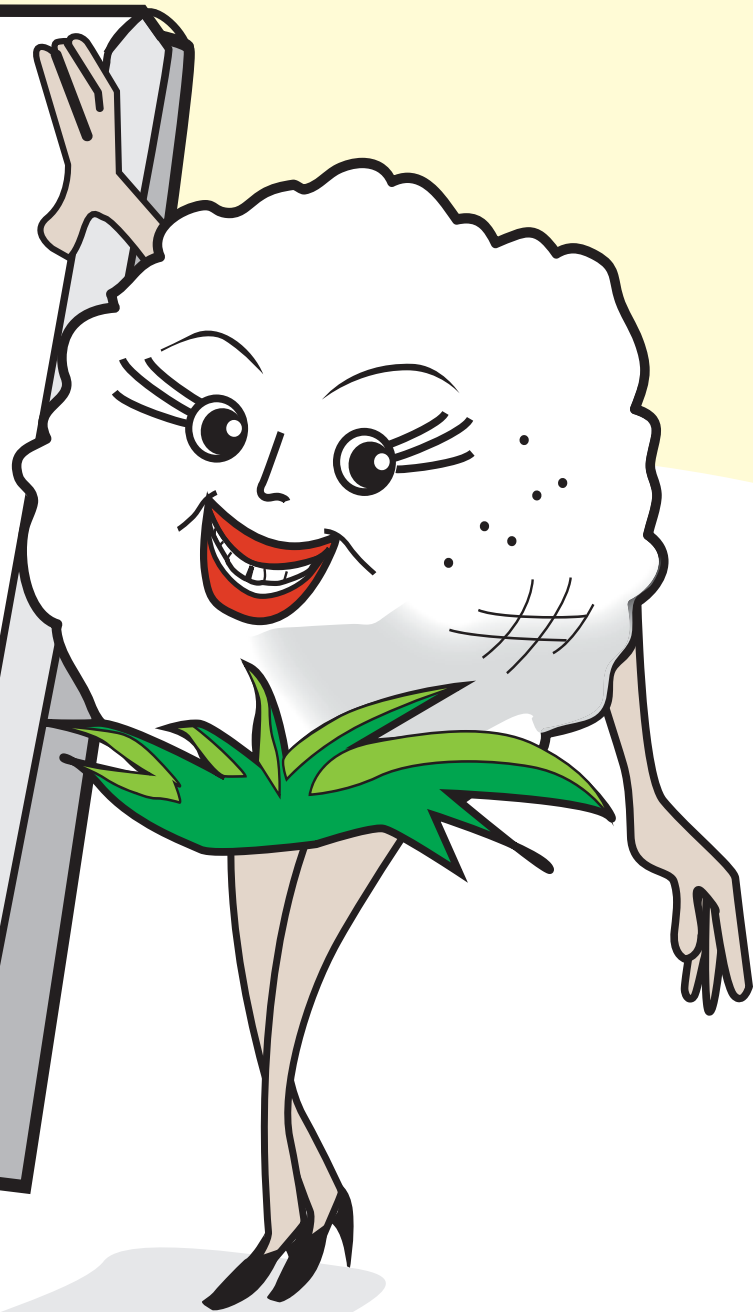


## Potential in Kenya

Kenya has huge potential to embrace biotechnology for sustainable agriculture.

## Findings

- (i) High crop losses due to pests infestation
- (ii) Massive crop failures due to drought
- (iii) Low crop yields due to use of inferior seeds and low inputs
- (iv) Prevalent food insecurity





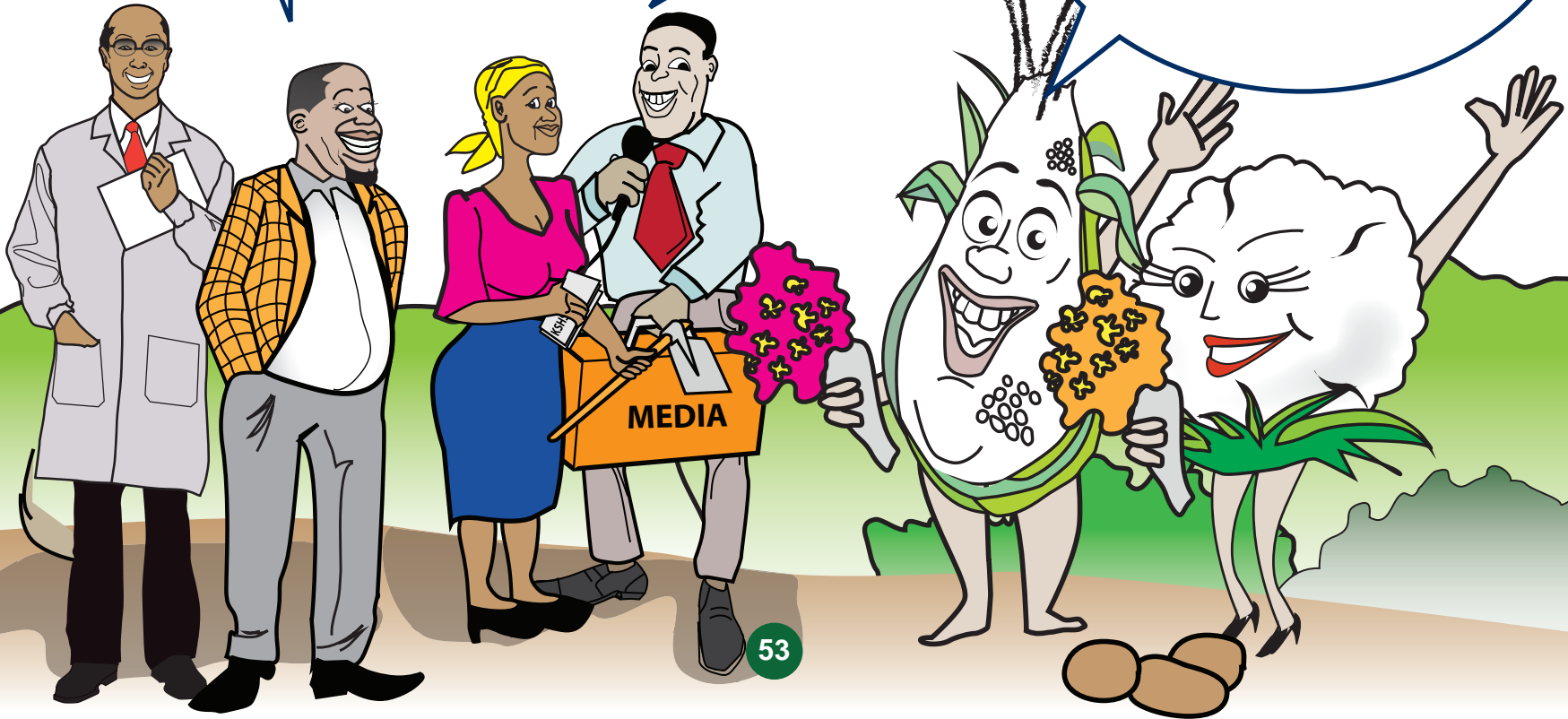
## Scorecard

1. Kenya has a Biotechnology Development Policy 2006 and a legislative framework — the Biosafety Act 2009 — in place.
2. The policy and legislative framework provide an opportunity for the use of GM crops in a safe and responsible manner.
3. Kenya has capacity to research, test and grow genetically modified crops and use their products.
4. A National Biosafety Authority has been established to regulate all matters concerning GMOs.
5. Most importantly, a public awareness mechanism is already in place through BioAWARE.

So the problem was lack of accurate information and not GM crops? Bwana Habari, you should host Mandy and Fanny on your popular morning show soon.

Yes! we have received many questions from our listeners that Mandy, Fanny and Prof. Mimea can answer. Is Monday fine?

Definitely! We owe it to Kenyans to share the correct information about GM crops.



## TEST YOUR UNDERSTANDING OF THE STORY

1. Mandy is a \_\_\_\_\_ crop
2. Fanny is a \_\_\_\_\_ crop
3. What is a genetically modified crop?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Name four GM crops that are commercially grown worldwide  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. Name the African countries with commercialized GM crops  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
6. In Kenya, how many GM crops are undergoing confined field trials and where?  
\_\_\_\_\_  
\_\_\_\_\_
7. Name two benefits of GM Crops  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
8. When did the Government of Kenya approve a Biotechnology Development Policy?  
\_\_\_\_\_  
\_\_\_\_\_
9. When was the Kenya Biosafety Act enacted?  
\_\_\_\_\_  
\_\_\_\_\_
10. GM Crops are grown in European countries  
 True       False



