

Sustainable Intensification of Push–Pull System with Vegetables



UPSCALE

UPSCALE THE BENEFITS OF PUSH-PULL
TECHNOLOGY FOR SUSTAINABLE AGRICULTURAL
INTENSIFICATION IN EAST AFRICA

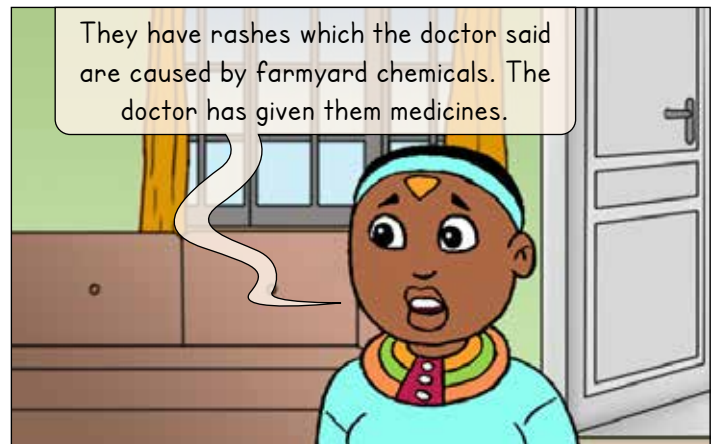


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AT WAWAGA SHOPPING CENTRE IN MIGORI, THE VILLAGE HEAD IS ANNOUNCING A MEETING MEANT FOR THE WEEKEND.



LATER ON AT PERESIA'S HOME. PERESIA IS GIVING HER CHILDREN MEDICATION AS MOLLY OSITA COMES VISITING.



AT THE CHIEF'S CAMP



Greetings all.

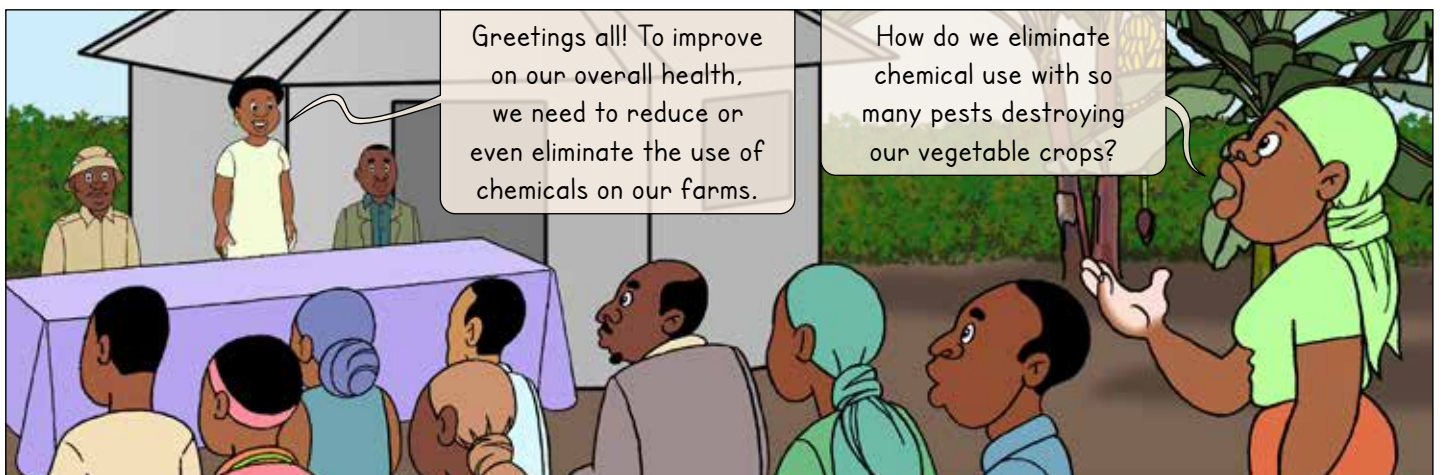
Greetings Chief!



Lately, we have been having medical cases related to the use of agro-chemicals on our farms. Additionally, my office has received complaints of increased pest damage to our crops.

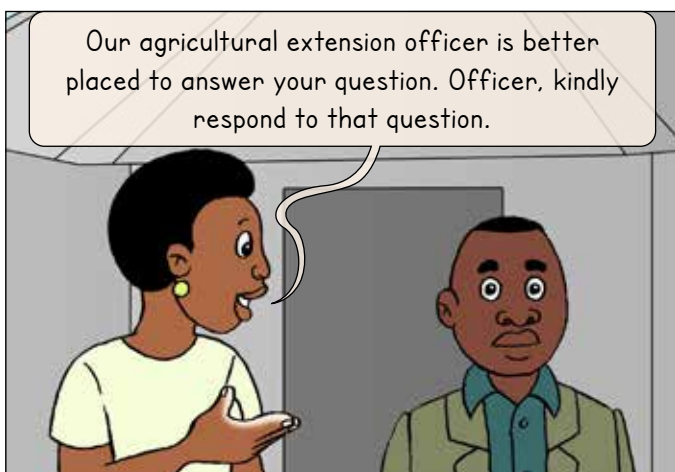


With us, we have the agricultural extension officer and the community health nurse to train us on what we need to do. Welcome nurse.



Greetings all! To improve on our overall health, we need to reduce or even eliminate the use of chemicals on our farms.

How do we eliminate chemical use with so many pests destroying our vegetable crops?



Our agricultural extension officer is better placed to answer your question. Officer, kindly respond to that question.

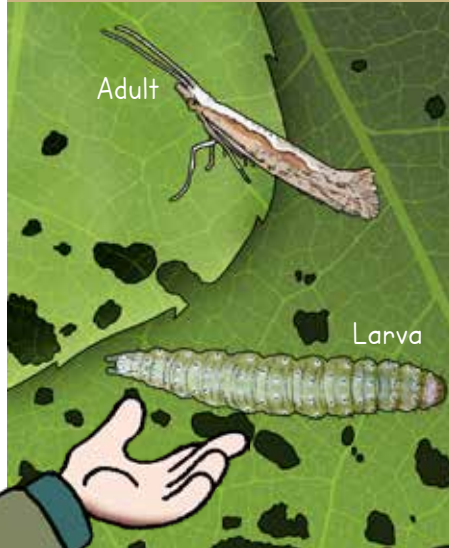


Greetings all! We can reduce, and even eliminate, the use of chemicals on our farms by using the proper farming practices.

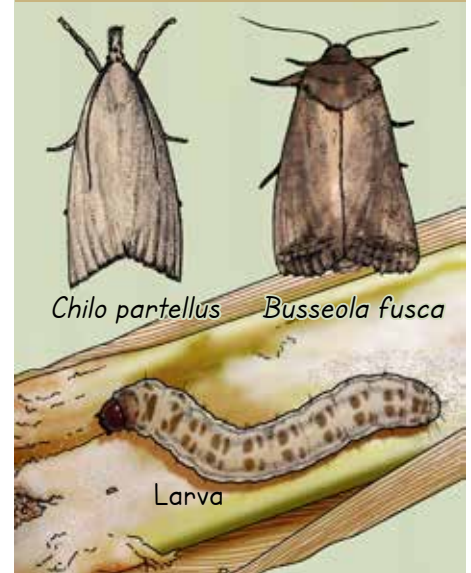
To give you proper solutions, we need to identify the pests in your farm. I will display photos of common pests attacking crops in this area. The pests include ...



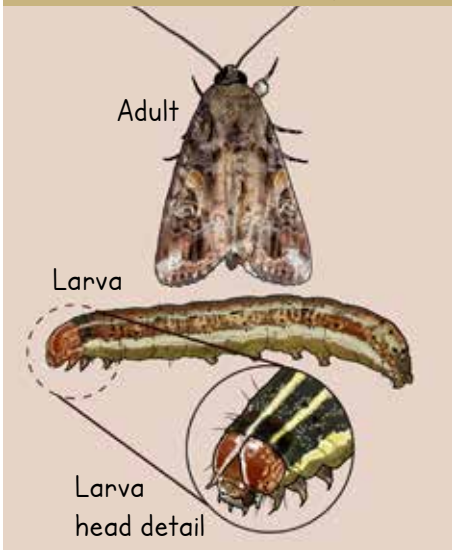
... diamondback moth and larva, a serious pest of kales and cabbages



Stemborer moths and larva, a pest destroying cereals



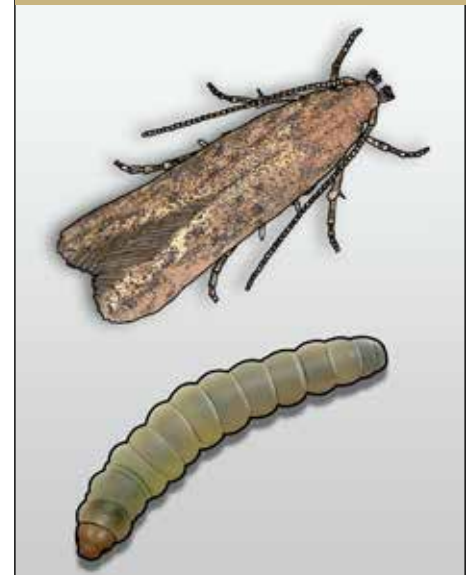
Fall armyworm adult and larva, pests of cereal crops and several other crops



very common cabbage looper



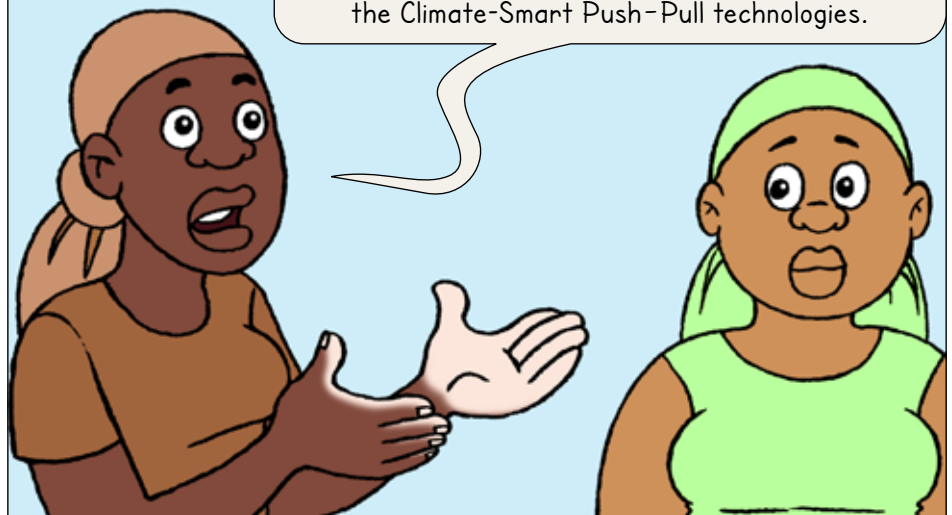
Tuta absoluta (tomato leaf miner), a serious tomato pest

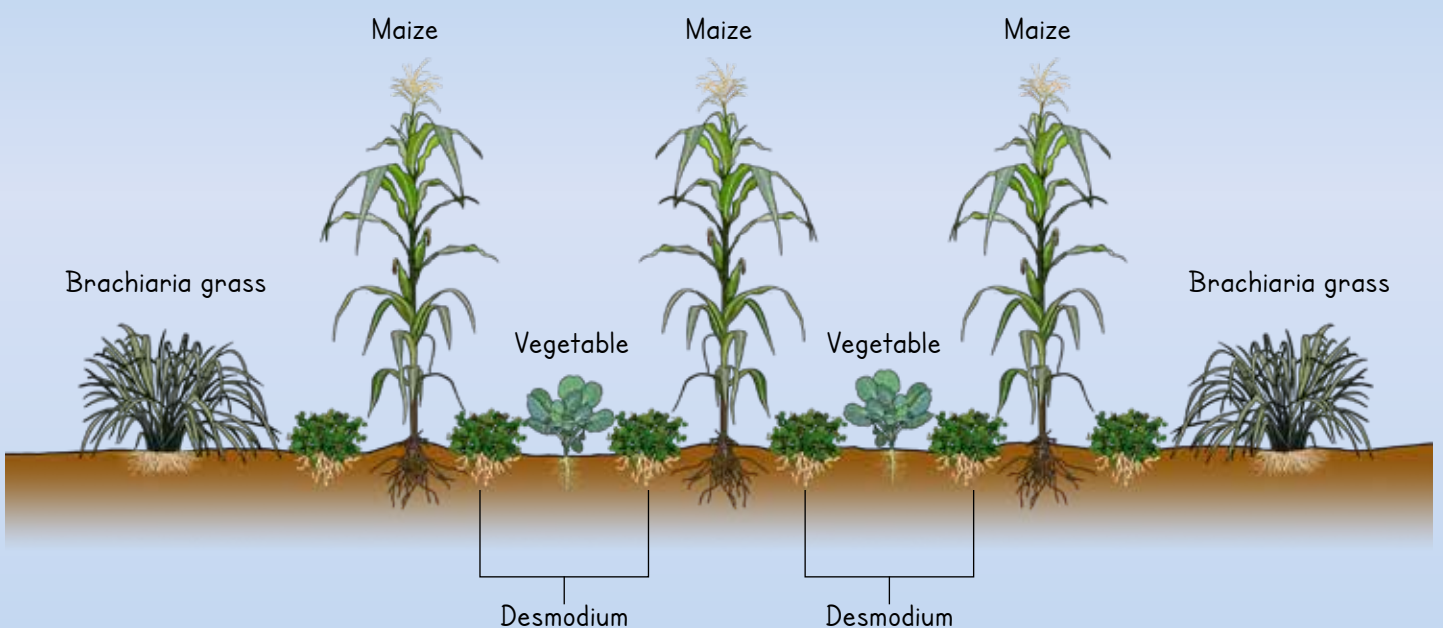
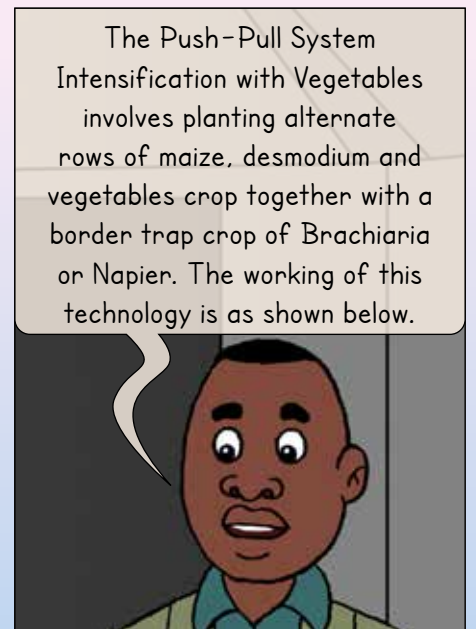
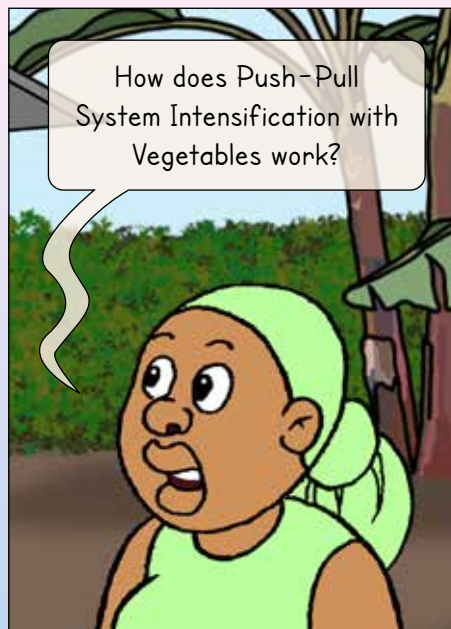
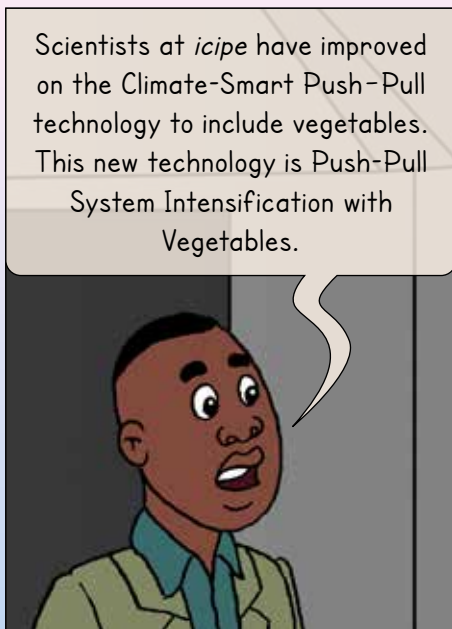
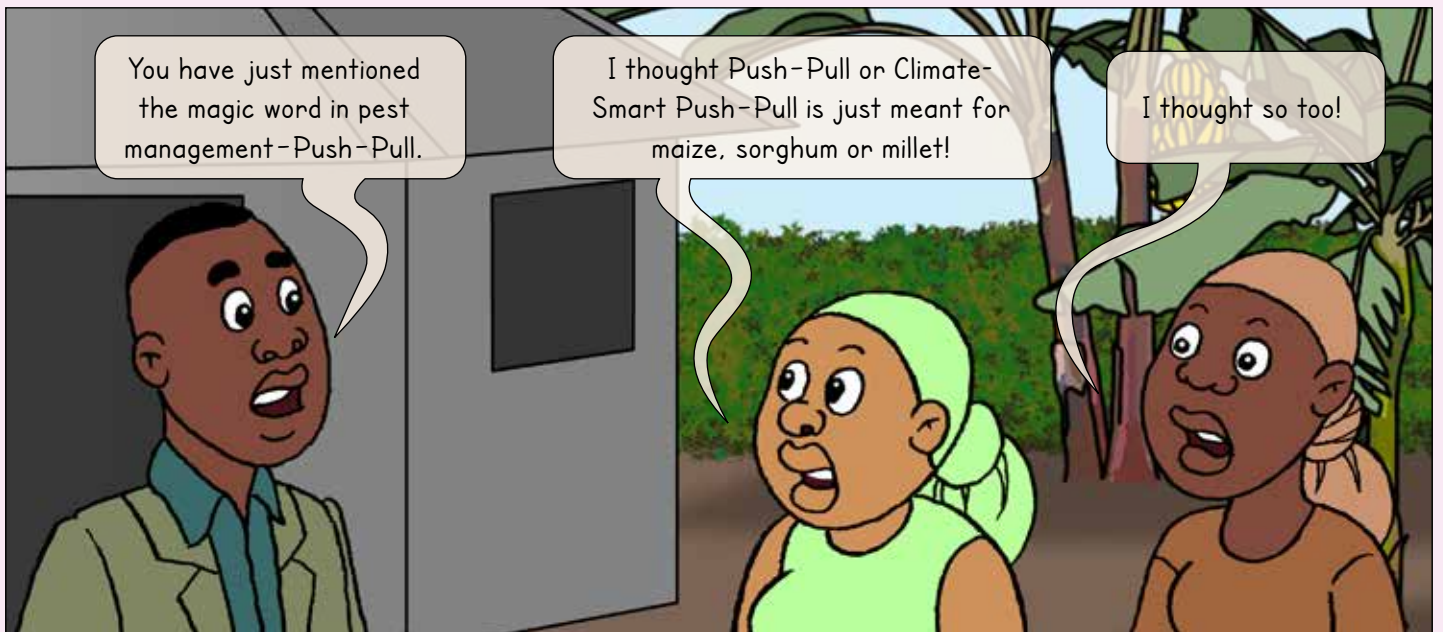


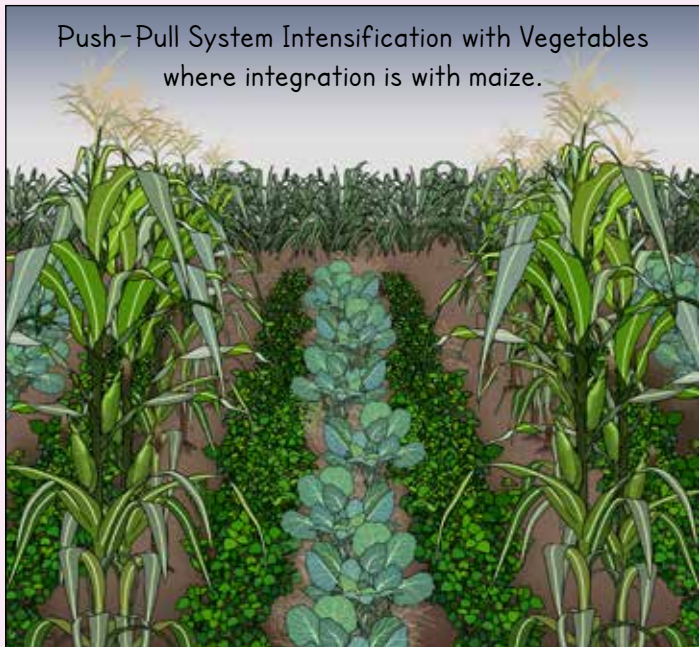
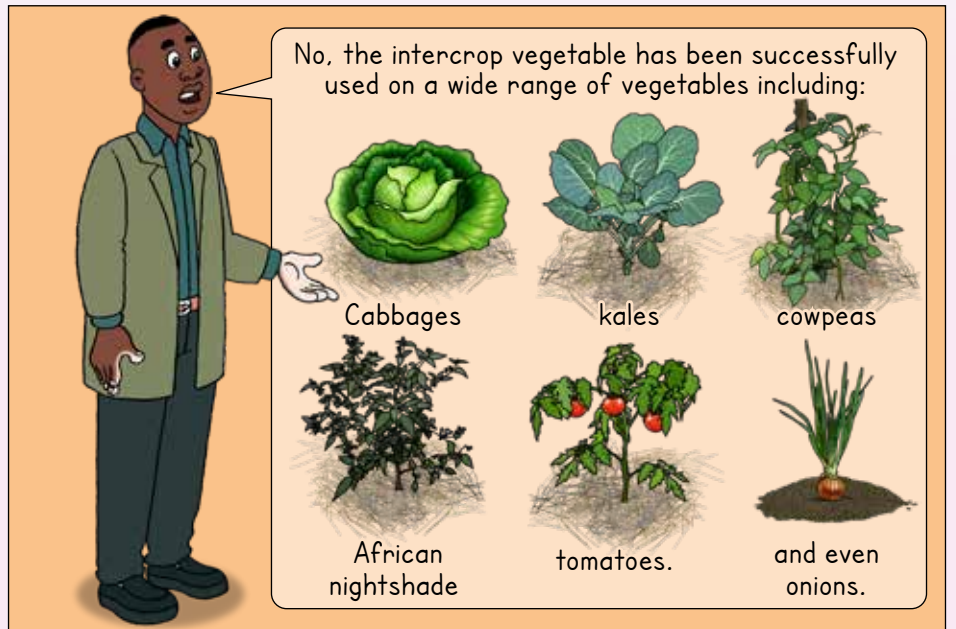
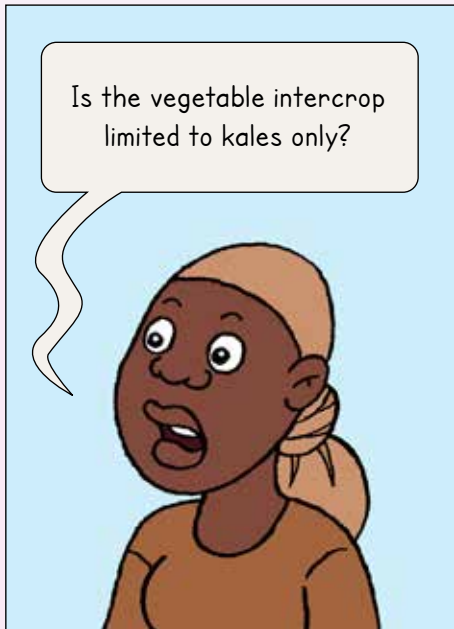
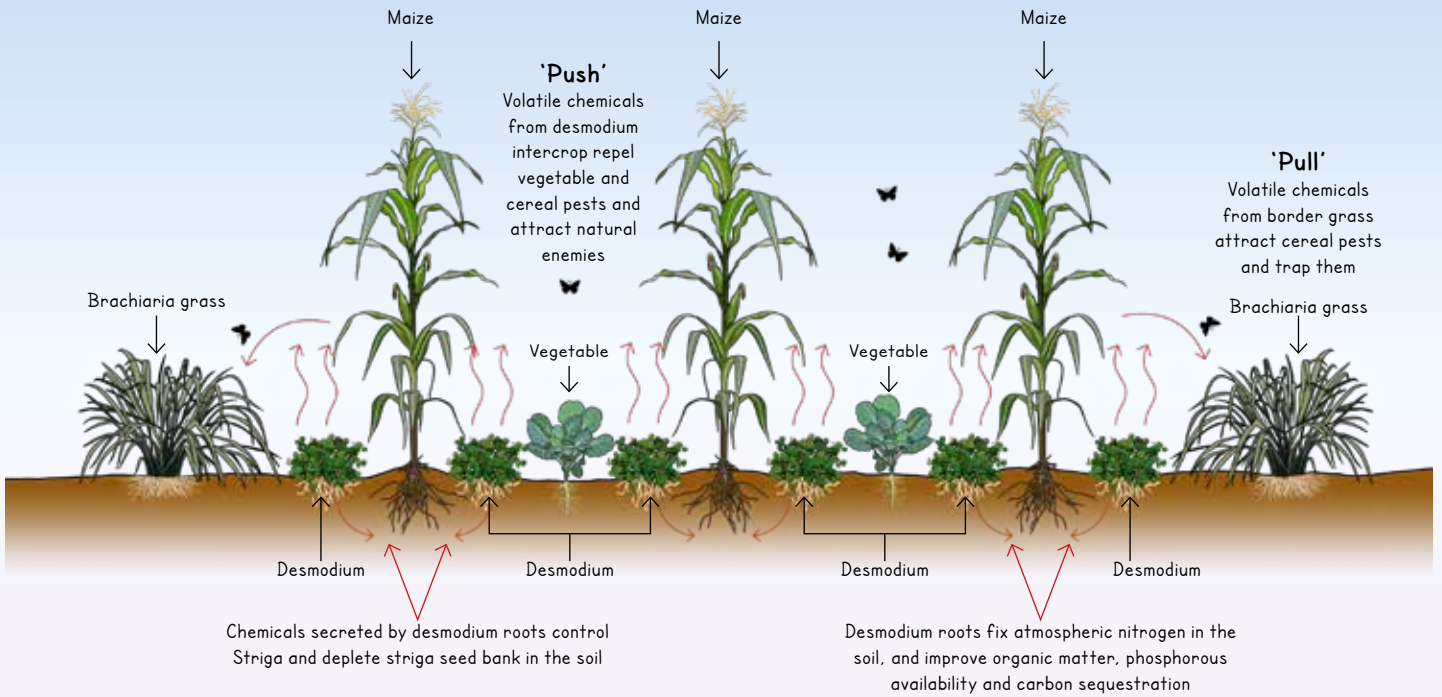
We get to see all those pests you have shown us on our farms.



However, over the years we have managed to control stemborers and fall armyworms on our maize, sorghum and millet using Push-Pull and subsequently the Climate-Smart Push-Pull technologies.









You can also plant the vegetables without maize or sorghum as shown here between two cereal cropping seasons when the land is not doing anything.

Are there any other benefits to the Push-Pull System Intensification with Vegetables?



The Push-Pull System Intensification with Vegetables still maintains very good control of the striga weed, stemborers and fall armyworms. Apart from pest management, additional benefits of the Push-Pull System Intensification with Vegetables include improvement of soil fertility, and improved income because the farmer will be harvesting the vegetables for sale and domestic use, while still waiting for the maize crop to mature. During off season, you can plant vegetables between the desmodium. This ensures maximum utilisation of the *shamba*. Additionally, it ensures moisture use efficiency and conservation. Desmodium and brachiarria will provide year-round fodder for your cows and goats

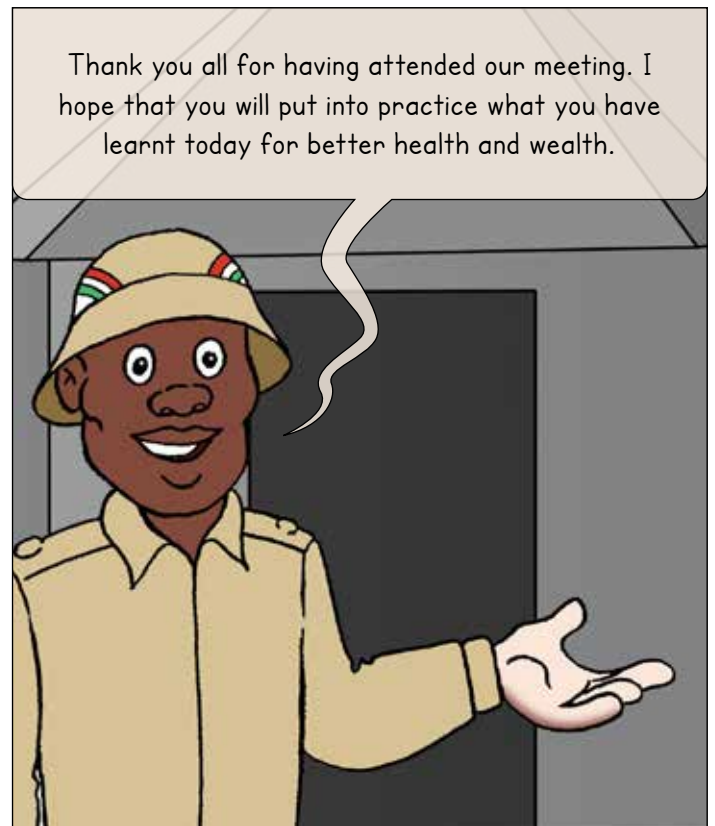
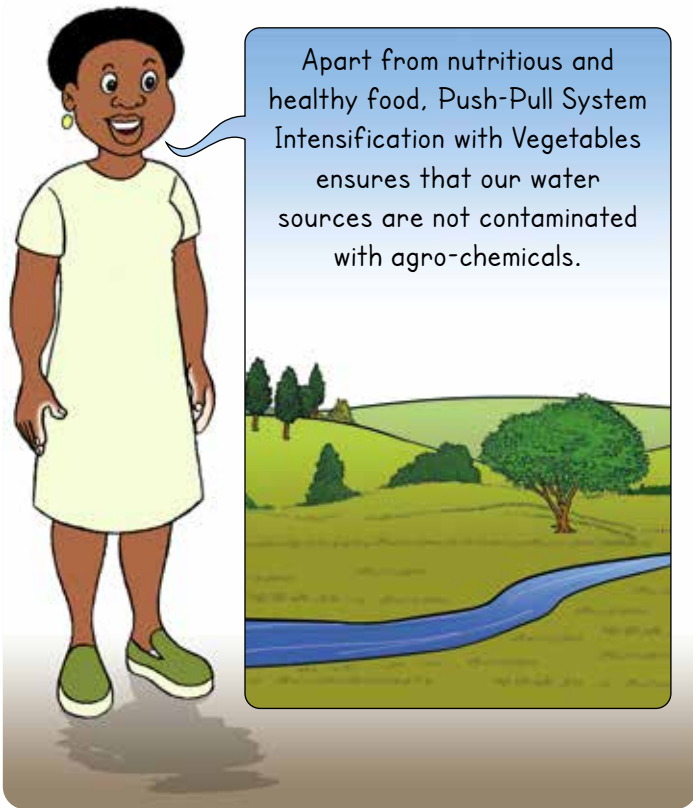


Zero chemical use ensures a healthy population of pollinators such as bees and natural enemies of pests. Desmodium also acts as a cover crop reducing soil erosion and enriching soil by fixing nitrogen and improving carbon. Our community health nurse can take over from here.



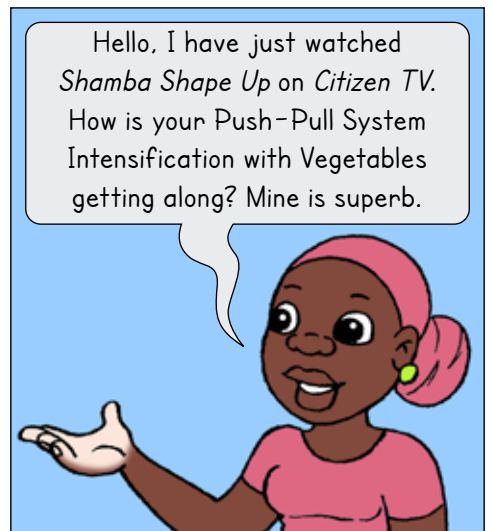
As our able agricultural extension officer has taught us that we can farm organically without using harmful pesticides. This ensures that we eat fresh healthy food and so we spend less time in hospitals and more time being productive.





MONTHS LATER.

It is early evening Peresia and John Otiep are seated outside their improved house after watching an episode of *Shamba Shape Up* on *Citizen TV* on vegetable integration on Push-Pull when Molly Osita comes visiting.

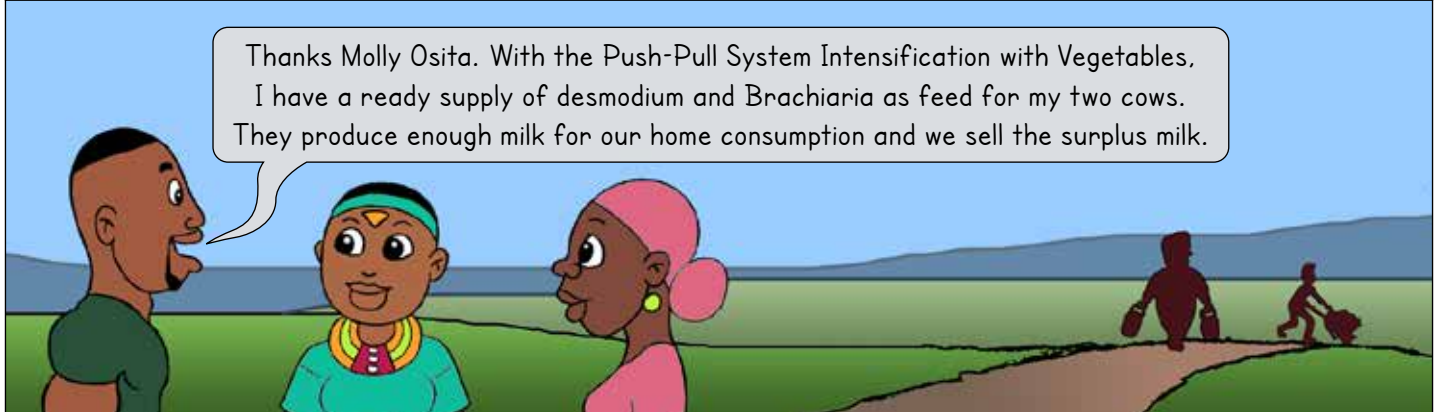


JUST THEN THE CHILDREN ARRIVE HOME FROM SCHOOL





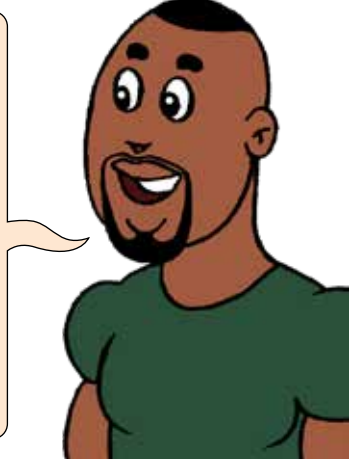
AS THE NEIGHBOURS LEAVE WITH THEIR MILK AND VEGETABLE ORDERS, JOHN OTIEP TURNS TO MOLLY.

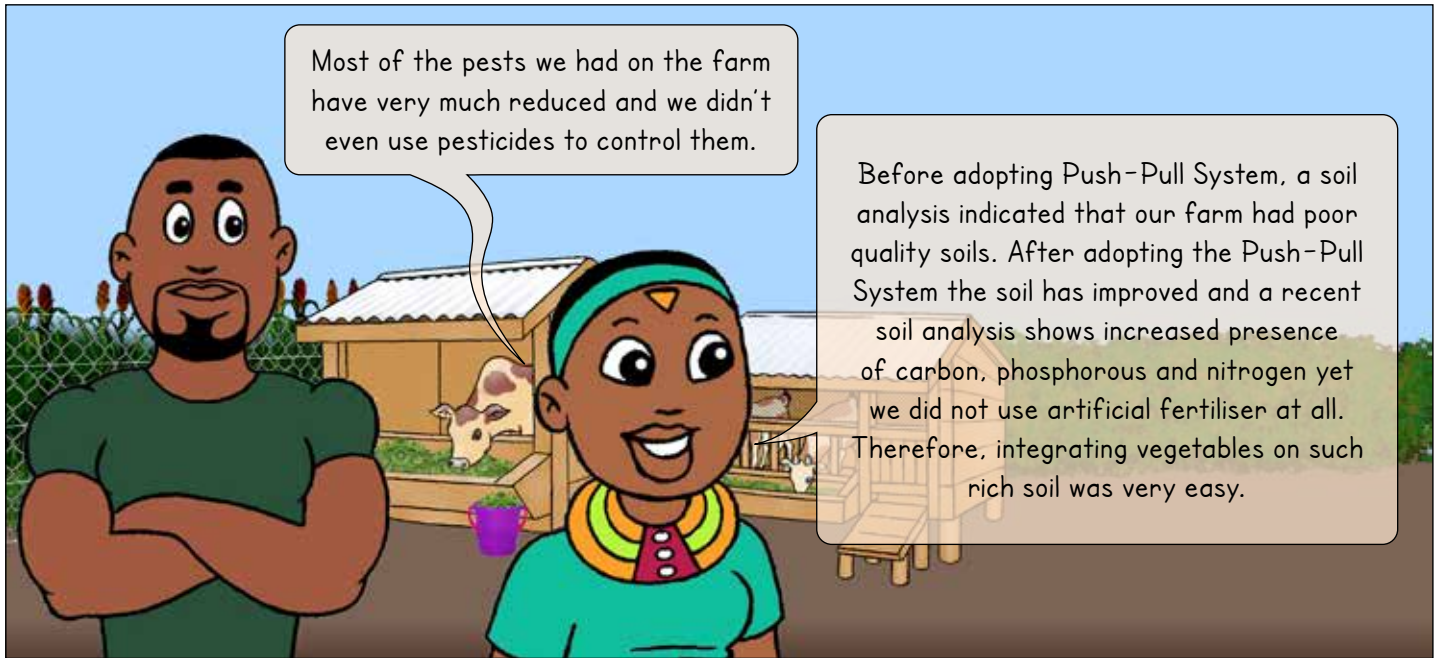


The children no longer suffer from conditions triggered by agro-chemicals and their performance in school is greatly improved since they no longer miss classes due to hospital visits.



Since we integrated vegetables in our Push-Pull vegetable integrated farm, we have stopped buying vegetables altogether. We also have vegetables for food and sale in between the cropping seasons.





Most of the pests we had on the farm have very much reduced and we didn't even use pesticides to control them.

Before adopting Push-Pull System, a soil analysis indicated that our farm had poor quality soils. After adopting the Push-Pull System the soil has improved and a recent soil analysis shows increased presence of carbon, phosphorous and nitrogen yet we did not use artificial fertiliser at all. Therefore, integrating vegetables on such rich soil was very easy.



A number of our neighbours have been asking us to teach them about Push-Pull vegetable integration.



That is great. The Ministry of Agriculture has been looking for model farms to use as a training base for villagers and I had hoped you will be willing to cooperate with them to teach Push-Pull vegetable integration.



Push-Pull vegetable integration has changed our lives and we would love to positively impact our society.

We are more than willing. Our Wawaga Village can be renowned for producing vegetables.



icipe's mission is to help alleviate poverty, ensure food security and improve the overall health status of peoples of the tropics by developing and extending management tools and strategies for harmful and useful arthropods, while preserving the natural resource base through research and capacity building.

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Editors: Z. R. Khan, J. Pittchar, G. Genga, D. Nyagol, F. Chidawanyika (*icipe*, Kenya)

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For more information, contact:

Director General

International Centre of Insect Physiology and Ecology (*icipe*)
P. O. Box 30772 - 00100 Nairobi, Kenya
Tel.: +254 (20) 8632000
Fax: +254 (20) 8632001, 8632002
E-mail: icipe@icipe.org

or

Push-Pull Programme

icipe-Mbita
P. O. Box 30 - 40305 Mbita, Kenya
Tel.: +254 (57) 2053201

or

Technology transfer unit at *icipe*

ttucrew@icipe.org
+254 0110 941 839

or

County and Sub-county Agriculture Offices

***icipe* - Working in Africa for Africa**

The International Centre of Insect Physiology and Ecology (*icipe*) was established in 1970 in direct response to the need for alternative and environmentally-friendly pest and vector management strategies. Headquartered in Nairobi, Kenya, *icipe* is mandated to conduct research and develop methods that are effective, selective, non-polluting, non-resistance inducing, and which are affordable to resource-limited rural and urban communities. *icipe*'s mandate further extends to the conservation and utilisation of the rich insect biodiversity found in Africa. *icipe*'s Capacity Building Programme aims to promote the development and utilisation of sustainable arthropod management technologies by enhancing the research and training capabilities of countries in Africa. The Centre's major areas of capacity building activity are: (i) Capacity building and professional development of university lecturers, researchers, and professionals in insect and related sciences; (ii) institutional development by nurturing and strengthening higher education, research and extension institutions; (iii) promoting innovations on insect science, in collaboration with regional and national agricultural research and advisory services, and the private sector. These objectives are realised through postgraduate training at PhD and MSc levels, professional development schemes for scientists, and non-degree training for technicians, scientists, community members and extension workers.

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International Centre of Insect Physiology and Ecology (*icipe*)

P. O. Box 30772-00100 Nairobi, Kenya
Email: ttucrew@icipe.org | Website: www.technologytransfer.icipe.org
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