

FOOD SECURITY AND MALARIA

INTRODUCTION

Roll Back Malaria's *Aim and Investment to Defeat Malaria, 2016–2050* illustrates the links between malaria, sustainable agriculture and food security in the sustainable development approach. As the world's population increases and greater food production is needed, farming sites will continue to increase.^{1,2} Poorly constructed or maintained irrigation systems and some agricultural practices can increase the risk of malaria transmission, and agricultural pollutants may also favour resistance.^{3,4} Urban farming is increasing rapidly, and is associated with adaptations in vectors' preferred habitats and breeding locations.⁵ It is important to promote sustainable agricultural practices as these can not only improve crop yields, and save water, at the same time they can also contribute to reduced malaria transmission.⁶

In economies that depend heavily on agriculture, reducing malaria increases the performance of intensive agricultural production, contributing to national food security and greater rural prosperity. In sub-Saharan Africa, women make up 60–80% of food crop producers for household consumption and sale.

Malaria undermines their labour output, interrupts the production cycle, and causes resources to be diverted from farm inputs.⁷ As the burden of malaria drops, women can engage in subsistence agriculture more effectively, increasing crop yields and make their households more food secure.⁸

The groups at highest risk for the adverse effects of malaria – children and pregnant women – are also most affected by poor nutrition.⁹ There is consistent evidence that general malnutrition is an important risk factor for greater frequency or more severe malaria.¹⁰ Less malaria means people can work their fields more consistently, with better harvests. The knock-on benefit is that well-nourished people, especially children, are better able to fight malaria.¹¹

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CASE STUDIES

Intermittent rice irrigation

In desert areas of **Peru**, flooded rice paddies may provide up to 90% of available breeding surface for malaria vectors. In 2006, the General Directorate for Environmental Health/Ministry of Health worked with the agricultural sector to introduce intermittent rice irrigation (IRI).¹² The results included favourable rice yields, a significant decrease in malaria and the requirement for insecticides, as well as considerable water savings.¹³ Subsequently, IRI has become the standard rice irrigation practice, bringing benefits for farmers and further reductions in the burden of malaria.

Protecting household food security¹⁴

Ngozi Nwankwo is a widow who heads a household in a rural part of south-east **Nigeria**. She used to lose more than 20 days a year, either through having malaria herself or spending time looking after others who were sick with malaria. Mrs Nwankwo and her family depend on growing their own vegetables and crops, and they use the little money they have available to buy seeds. In the rainy season, she needs to plant her field. However, as this is also the time when there are more mosquitoes, the children often used to get ill, affecting Mrs Nwankwo's ability to work. Hence, her crops often had low yields and the household faced severe food security challenges.

After receiving bed nets and information on how to use them correctly, life has greatly improved for Mrs Nwankwo and her family. She has been healthy, and the children have rarely been ill with malaria. This has enabled her to tend her field more efficiently and to save money for some fertilizer. She now has much better harvests and can sometimes even sell some of her produce at the market.

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