

By **integrating farmers** into **research on vegetable cultivation**, the **production** and **consumption** of vegetable crops significantly **increased**, leading to **improved family nutrition** and **incomes**.

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Around 50% of Malawi's rural communities are living in poverty, with 25% still living in 'ultra poverty' with high rates of malnutrition.\* The cultivation of vegetable crops can provide an income, while indigenous vegetables in particular can contribute significantly to vitamin and mineral intake.

While the climate is favourable for vegetable production, the lack of quality seed varieties, combined with poor pest and disease deterrents, hinder vegetable cultivation and both production and consumption has remained low.

Agricultural research on improving productivity in sub-Saharan countries previously suffered from limited funding and poor intergration of key stakeholders. A more integrated approach has been proposed. With the help of Bioversity International, farmers were trained to conduct research towards improved vegetable production, marketing and ultimately, improved nutrition and incomes.

\*Source: National Statistics Office, Republic of Malawi. Integrated Household Survey, 2010-2011.



## The project

The Vegetable Taskforce in Malawi, forms part of a wider project initiative across sub-Saharan Africa, initiated in 2004, to address the under performance of agricultural research in Africa.

Led by Bioversity International, the Vegetable Taskforce focused on two districts of southern Malawi (Thyolo and Zomba) from 2008-2011, guided by the Integrated Agricultural Research for Development concept which develops farmers' ability to conduct research thereby increasing the impact of research on farming.

The aim of the project was to increase vegetable production (both indigenous and high-yielding exotic varieties), improve the marketing of vegetables and subsequent household incomes, and increase vegetable consumption thereby improving family nutrition.



Science for a food secure future

Bioversity International is a member of the CGIAR Consortium. CGIAR is a global research partnership for a food secure future.



Above: A farmer tending to his intercropped garden; Previous page: farmer in his bean field. Credit: Lawrence Mapemba

## Partners

The Vegetable Taskforce was led by Bioversity International and coordinated by government departments (Ministry of Agriculture and Food Security, the Department of Agricultural Research Services, and the Department of Agricultural Extension).

Agricultural expertise was provided by the World Vegetable Centre and Bunda College of Agriculture (University of Malawi), with participation from non-governmental organizations (Millennium Villages Project and Smallholder Irrigation Project), researchers, agricultural suppliers and farmer groups.

Groups of villagers were formed into 'Innovation Platforms' to carry out research for improved vegetable production.

## Methodology

The methodology used to evaluate project outcomes involved both qualitative and quantitative approaches, including key-informant and household interviews and focus group discussions.

In each project district (Thyolo and Zomba), 20 households were randomly selected from within three villages, and the same for the two control districts (Mulanje and Phalombe). In addition to these 80 households, 20 non-participating households—although based in project villages—were also selected to assess any 'spill-over' effects.

## Results

This project emphasizes the benefits of a more integrated approach to agricultural research on improving household income and nutrition. One hundred households from four districts in southern Malawi were surveyed.

### RESULTS: PRODUCTION

Higher yielding vegetable varieties were developed in research stations and the resulting seeds distributed to project communities. Farmers received horticultural training on vegetable production through farm trials, field demonstrations, as well as through visits to the research station. Training and technical support was provided for improved irrigation in the dry season, and farmers now have improved access to irrigation equipment.

Results showed that those farmers who participated in the project were more likely to adopt the improved vegetable varieties, and their land under cultivation increased from as little as zero to as much as half an acre.

Production levels significantly increased and some vegetables (e.g. amaranthus, cabbage green pepper, field peas and bean leaves) were only grown in project areas.

Overall, indigenous vegetables were allocated a greater area of land—whereas they had previously grown in the bush—and the production of these highly nutritious vegetables significantly increased in participating households.

### KEY FIGURES

- Participating households produced **481 kg** of vegetables, compared to **281 kg** in non-project households in one year.



**RESULTS: INCOME**

Vegetable production is a valuable, and an increasingly important source for income generation among poor rural communities. In both project areas, participating households generated significantly higher levels of income from vegetable sales than non-participating households—on average, it was estimated the project increased income from vegetables by over 70%.

Specifically, 56% of participating households were able to generate over MK 20k (US\$ 154) per year from vegetable sales compared to 47% of non-participating households. Likewise, 27% were able to generate more than MK 60k (US\$ 462) compared to only 10% of non-participating households.

Through training in irrigation, the project encouraged multiple croppings per year, and 50% of all vegetable varieties grown during the dry season were only grown in project households, which were mainly marketable vegetables like tomatoes and cabbages.

**KEY FIGURES**

- The project increased incomes of participating households by over **70% on average**.

*In both project areas, participating households generated significantly higher levels of income from vegetable sales than non-participating households*

**RESULTS: MARKETING**

The potential for marketing surplus vegetables was high in the project areas due to their proximity to big cities with a high demand for vegetables. However, many obstacles were identified which instead hinder the marketing of vegetables, such as poor integration of farmers into the marketing system, and a lack of skills to exploit market opportunities.

During the project, farmers were trained in how best to market their surplus crops. They received support on how to identify the correct quantity of vegetables needed to maximize profits, how to obtain longer-term market contracts and how to better negotiate prices and improve record keeping.

The quantity of vegetables sold were greater in participating sites. Crops including the high-yielding cabbage, green pepper and rape, all had significantly higher sales than in non-participating households. For example, 57,000 kg of cabbage was sold, compared to only 753 kg in non-participating households.

**KEY FIGURES**

- Marketed vegetables increased from **203 kg to 507 kg** per year in participating households.

Above left: high-yielding rape that mature fast and grow in the dry season, enabling income generation year round;  
 above right: tomato trees in a farmers wetland garden.  
 Credit: Lawrence Mapemba



*Those farmers aware of the nutritional benefits of indigenous vegetables increased their consumption*

Above: Onion field; right: A vegetable pack developed by the Taskforce that contained vegetable seeds under promotion, a small pack of fertilizer and chemicals against prevalent pests and diseases. Credit: Lawrence Mapemba



This brief is based on Mapemba L. 2013. *Improving human nutrition and income through integrated agricultural research on production and marketing of vegetables in Malawi*. Bioversity International internal report.

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For further information please contact  
Bioversity Impact Assessment Specialist  
Dr Elisabetta Gotor  
(e.gotor@cgiar.org)

## RESULTS: CONSUMPTION

Vegetable consumption—particularly indigenous vegetables—is a major provider of vitamin A and iron among poor rural communities.

Results showed that significantly more vegetables were being consumed by households who participated in the project. In Thyolo, it was estimated that 109 kg of vegetables were consumed per year, as compared to only 56 kg in non-participating households. Similarly, in Zomba, 78 kg were estimated to have been consumed compared to 48 kg.

The proportion of households consuming vegetables has also increased, with 69% of participating households recorded as having consumed vegetables recently, compared to only 32% of non-participating households.

Awareness of the benefits also affected consumption. Those farmers aware of the nutritional benefits of indigenous vegetables increased their consumption. Activities to promote the consumption focused on raising awareness of the nutritional value throughout communities—including the preparation of nutritional recipes on how to cook and prepare vegetables for consumption.

## KEY FIGURES

- 69% of participating households consumed vegetables as compared to 32% of non-participants.

## Related Reading

MAPEMBA, LAWRENCE. 2011. *Quarterly report. The Vegetable Taskforce, Malawi*.

MAPEMBA, LAWRENCE. 2011. *Vegetable Farming among Smallholder Farmers in Zomba and Thyolo Districts of Malawi: Policy Constraints*.

PITORO, RAUL. 2010. *Value-Chain Analysis of Indigenous Vegetables in Selected Districts of Malawi and Mozambique*. AVDR-C-The World Vegetable Center

## KEY RECOMMENDATIONS

**Indigenous vegetables:** The government has started to promote the cultivation of indigenous vegetables, and there is an increased demand for indigenous vegetable seeds through the research stations. Further promotion of the cultivation of indigenous vegetables is needed due to their nutritional qualities.

**Irrigation:** The current government strategy of promoting irrigation would increase in importance if it were coupled with the promotion of vegetable production—especially high-value and modern varieties of tomato, cabbage, onions, green pepper, amaranthus and beans leaves.

**Horticulture:** The current horticultural policy needs to be revised to include recent strategies and policy recommendations.