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Nutrition security in Tanzania

Orange-fleshed sweet potatoes and
their contribution to health



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List of Abbreviations

AIDS	Auto immune deficiency syndrome
CIA	Central Intelligence Agency
CMMF	Community Managed Microfinance
DNA	Desoxyribonucleinacid
FAO	Food and Agriculture Organization
FEWS NET	Famine Early Warning Systems Network
GDN	Global Development Network
GDP	Gross domestic product
GPN	Global Peace Network
HIV	Human immunodeficiency virus
IDD	Iodine deficiency disorders
IU	International Unit
MOH	Ministry of Health
NBS	National Bureau of Statistics
NGO	Non-governmental organization
OFSP	Orange-fleshed sweet potato
PEM	Protein energy malnutrition
PFD	Partners of Development
RAE	Retinol activity equivalent
RBP	Retinol-binding protein
SMFEA	Stromme Microfinance East Africa
SSA	Sub-Saharan Africa
TAHEA	Tanzania Home Economics Association
TFNC	Tanzania Food and Nutrition Centre
TPSF	Tanzanian Private Sector Foundation
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	Unit for Children
USDA	United States Department of Agriculture
VAD	Vitamin A-deficiency
VITAA	Vitamin A for Africa
WFSP	White-fleshed sweet potato
WFS	World Food Summit
WHO	World Health Organization

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Abstract

Particularly in developing countries nearly one billion people are effected by nutrition insecurity in form of under- or malnutrition (FAO 2010, p. 1). Merely by the expression of vitamin A-deficiency an estimate of up to 500,000 children go blind worldwide every year (WHO 2011). This survey deals with a solution approach in form of the contribution made by the orange-fleshed sweet potato (OFSP) and its afford towards nutrition security in rural areas of Mwanza, Tanzania. With help of the partner organization *TAHEA*, a retrospective population-based study of the nutritional status of rural population of Mwanza was conducted and impressions on food security were reinforced through participant observation. The positive influence of OFSP towards vitamin A status has been confirmed and among others an income-generating function by cultivation and sale of the tuber has been observed. The risk of a possible overdose must also be considered. Thus, the tuber is recommended as a nutritious snack or side dish, but should not be advertised as a considered staple food.

Aktuell sind besonders in Entwicklungsländern nahezu eine Milliarde Menschen von Ernährungsunsicherheit in Form von Unter- oder Mangelernährung betroffen (FAO 2010, p. 1). Allein durch die Ausprägung eines Vitamin A-Mangels, erblinden Schätzungen zufolge weltweit jährlich bis zu 500.000 Kinder (WHO 2011). Diese Studie beschäftigt sich mit einem Lösungsansatz in Form des Beitrags, den die orange-fleischige Süßkartoffel (OFSP) zur Ernährungssicherheit in ländlichen Gebieten von Mwanza, Tansania, leistet und leisten kann. Mit Hilfe der Partnerorganisation *TAHEA* wurde durch eine retrospektive Stichproben-Studie der Ernährungszustand der ländlichen Bevölkerung Mwanzas erfasst und Eindrücke zum Thema Ernährungssicherheit durch teilnehmende Beobachtungen untermauert. Der positive Einfluss der OFSP auf die Vitamin A-Versorgung wurde bestätigt und unter anderem eine einkommensbildende Funktion durch Kultivierung und Verkauf der Knolle beobachtet. Doch auch die Gefahr einer möglichen Überdosierung muss beachtet werden. Somit empfiehlt sich die Knolle als nährstoffreiche Zwischenmahlzeit oder Beilage, sollte aber nicht als täglich zu verzehrendes Grundnahrungsmittel beworben werden.

1 Introduction

"Food and nutrition security exists when all people, at all time, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active, productive and healthy life"

(WFS 1996, p. 3).

This survey is the result of a project in the United Republic of Tanzania carried out with the support and help of the local organization Tanzania Home Economics Association (TAHEA). It deals with the contribution of orange-fleshed sweet potatoes (OFSP) towards nutrition security in rural areas in Mwanza, Tanzania. TAHEA wants to make an assessment about the success of their conducted sweet potato projects especially for the rural living part of their project participants and develop on the basis of the outcome possible improvements to food security and education. The survey was planned on behalf of the organization and performed with their help.

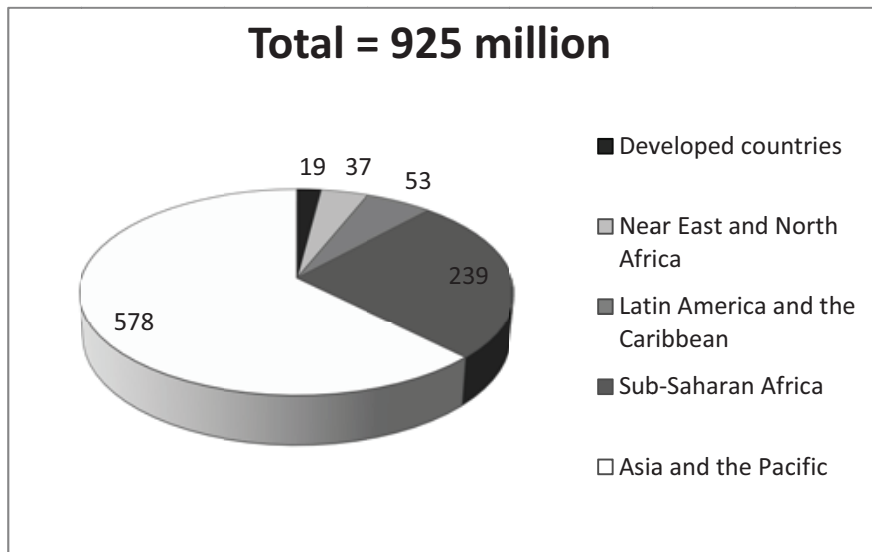
The beginning of modern interest in food security is coincident with the Second World War, which demonstrated that localized hunger, resulting undernourishment and instability could escalate into problems of global significance (MCDONALD 2010, p. 12). In 1996 the WORLD FOOD SUMMIT requires in its Rome Declaration on World Food Security that each nation must adopt a strategy consistent with its resources and capacities to achieve its individual goals and cooperate regionally and internationally in order to organize cooperative solutions to global issues of food security and health (WFS 1996, p. 3).

Worldwide, actually nearly one billion people are classified as undernourished, most of whom live in the developing countries (see Fig. 1). There, they account for 16 percent of the population (FAO 2010, p. 1). Malnutrition is also highly prevalent in Tanzania. More than a third of children below five years are affected by chronic malnutrition, also called stunting, and in the southern zone prevalence surpasses about 50 percent (FAO 2008, p. 3). A special form of malnutrition is vitamin A deficiency (VAD), which is a serious wide spread nutritional and health problem affecting a lot of people especially children in the

developing countries including Tanzania. Most countries in the sub-Saharan region are categorized as having a public health problem concerning clinical and nonclinical VAD. Of the global total of 140 million children affected by VAD,

nearly 100 million live in South Asia or sub-Saharan Africa (SSA) (Mason et al. 2001, p. 34).

Fig. 1: Undernourishment by world-region (in millions)



(modified from FAO 2010, p. 2)

The poor population of developing countries has only limited access to expansive foods that contain high values of vitamin A, like liver, milk and butter. Significant efforts has therefore been made to support improved vitamin A intake through increased dietary intake and improved storage and preparation of a variety of appropriate plant sources that contain this vitamin (LOW et al. 2001, p. 4). One of that special promoted plant sources is the sweet potato. New varieties rich in beta-carotene were introduced through a research institute, adding health value to the existing varieties (TAHEA 2009, p. 2) to secure food and nutrition security.

This survey shall now illuminate the daily consumption of rural population to represent the proportion of the sweet potato roots to nutritional intake particularly in view to vitamin A to prevent deficiency. In this way it is to observe whether the cultivation of OFSP has changed or even improved the everyday lives of cultivars and consumer in health and economic manner. To set these possible aspects of the contribution of OFSP towards nutrition security into context with existing scientific findings, the issue shall be considered theoretically, but also be represented by a self-conducted empirical survey. The theoretical foundations shall be represent a basis of which the own survey can be evaluated and assessed in its results.

In conclusion, these considerations lead to the following objectives of this work:

- Survey of eating habits of Tanzanian people (especially rural living) to control the supply of nutrients.
- Determining the extent of OFSP-cultivation and -consumption and potential positive impact on health of the population.
- Survey of the processing methods at household level including the hygienic conditions.
- Determining the contribution of OFSP and products made of it to the income generation of farmers and their families.

To achieve these goals also for the self-conducted survey, the methods of a nutrition survey in the form of a 24-hours recall and additional participant observations were chosen and performed in a rural village located in a district of Mwanza that is supported by TAHEA and its projects. As a comparison, the data of a 24-hours recall carried out in the same period by DWOJACZNY (2011) in a village without special support are used. This village is also part of a rural district of Mwanza. It is to find out if these people also consume OFSP or know about beneficial effects of this variety without special teaching. This shall also show whether the promotion and support of the sweet potatoes offers desired impact and benefits for the population.