May 2015

# NEWSLETTER

**International capacity building project for Bukura Agricultural College's dairy and horticulture programs (NICHE/KEN/124)**

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## Introduction

**By Carel Jaspers, Director Q-Point BV**

The project "Capacity building for improving dairy and horticulture programmes to meet the requirements of the labour market and to contribute to food security and the commercialization of the sector" (NICHE/KEN/124), is now in the last year of implementation. Most of the teaching and training equipment is in place now and focus will be on further coaching of BAC staff in the field of value addition in dairy and horticulture and entrepreneur-ship.

As project director and also as friend, I would congratulate Dr. Beatrice Osumbah with her marriage on April 2015.

I hope you enjoy reading.
Carel Jaspers, director Q-Point

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## Processing of the plans

**By Dr. Beatrice Osumbah, Deputy Principal of Burkura Agricultural College**.

About € 500,000 later from the Niche project, Bukura Agricultural College has strengthened her organizational capacity, governance and increased her revenue base. More members of management are more able to delegate responsibilities and involve more staff in decision making. The College just carried out surveillance audit under the revised QMS procedures and is seeking re-certification. This was made much easier when internal auditors were taken through a refresher course. In addition there has been increased marketing of the College programmes and institutions, youth groups and community based organizations are approaching the College to offer short courses for their staff and members. Concerning the curriculum objective, the College staff now has the capacity to develop training programmes and curricula based on the labour market needs.

**The project has been an eye opener for the College and a strong springboard from which the College's vision can be realized.**

*BAC top and middle management during training in performance management.*

The College has just registered with the Technical, Vocational, Education and Training Authority (TVETA) which was enacted in 2013. TVETA demands that BAC, like all other middle level training institutions in the Country, offer Competency Based modularized curricula. Currently the staff is undergoing training in modularization of curricula and implementation of Competency Based Education and Training (CBET). The last investments, done by the project, which will boost implementation of curricula are the installed greenhouses (highlighted by John Suge in this newsletter) and the milk processing plant which is yet to be installed. The milk processing plant will not only provide training facilities in value addition, but will also provide market for milk from community surrounding the College. On issues collaborations, the College still has to work hard and establish new linkages with Universities and other institutions.

Lastly, the gender agenda has really boosted the understanding of both staff and students on gender mainstreaming, as a way of life. While the College has initiated the process of reviewing her gender policy based on sensitization, members of the gender committee are already sensitizing students with a view of reducing gender disparities in courses of concern such as Agricultural Engineering and Food Science and Nutrition.
In conclusion, the Niche project, being the first donor funded project at BAC, has been an eye opener for the College and a strong springboard from which the College's vision can be realized. My prayer is that at the time of project closure BAC and Q-point will say without fear of contradiction that "we have ran the project race, we have kept the project vision and we have changed the lives of many for the better".

## Efficacy of biofumigation

**By Grace Chongori, Lecturer at Bukura Agricultural College undertaking Master of Science studies in Horticulture at Egerton University.**

I completed the one year course work in August 2013 and embarked on research project in Sept 2013. I researched on "**Efficacy of biofumigation using African spider plant (Cleome gynandra) on weed control, growth and quality of Paspalum turfgrass (Paspalum notatum)**" and completed data collection in November 2014; I've already analyzed the data and I am currently on thesis writing.
I majored in ornamental Horticulture because most of the Bukura Horticulture graduates get employment in the Floriculture industry hence the need for being well equipped as a trainer to empower them well for the job market. I am glad for the opportunity availed me to further my studies as it has enhanced my understanding, knowledge and skills of

crop production; sharpened my ability to generate new ideas of better practices for safe sustainable productivity and economic utilization of locally available resources.

**I hoped to come up with a safer alternative of weed management which can also be applied in other crops.**

Realizing how weeds are a menace in lawn establishment; and tropical climatic conditions favoring frequent weed growth resulting in numerous seeds in the soils. Weed seeds lie dormant but viable for long periods which germinate and grow during favorable weather conditions posing a real challenge. Weeds compete with turf for moisture, nutrients and light affecting lawn growth and development hence may outdo turf grass killing it if not controlled. Cultivation and pesticides are the commonly used weed control methods yet cultivation alone is insufficient. Use of synthetic pesticides however contributes to environmental contamination and poses a risk to humans and animals due to chemical toxicities. I hoped to come up with a safer alternative of weed management which can also be applied in other crops. Results of my research indicate biofumigation with Cleome gynandra can help manage some weeds. Now that Cleome gynandra is a crop commonly grown in my locality as a vegetable, I intend to demonstrate and encourage growing of more of it so that some can just be incorporated into the soil for weed suppression and maybe suppression of some pathogens and insect pests as it has been found to manage spider mites in rose flower production.

*Cleome gynandra.*

*Cleome gynandra crop.*

*Uprooting the crop at initial flowering stage (best for biofumigation).*

*Uprooting and chopping of Cleome gynandra for incooperating into the soil.*

*Incooperating chooped Cleome gynandra into the soil at different rates.*

*Biofumigating the soil with Cleome gynandra.*

*Establishment of Paspalum notatum turfgrass on the biofumigated plots*.

*Established Paspalum notatum.*

## Greenhouses

**By John Suge, Head of Agriculture and animal science department**

Greenhouse farming in Kenya is one of the key farming technologies currently picking up amongst the horticulture farmers in Kenya. The concept was included as one of the components in the horticulture curriculum review and therefore included on the investment list as a key teaching facility.

The project acquired three green houses for the College which represents an average farmer in terms of size and technology. The structures are being completed ready for use by students in May this year.

*Greenhouse structures.*

The green houses will allow propagating plants, setup research experiments and practical and also practicing what the farmers grow under real farmer situations.

*Student demonstration fields*.

This investment also benefits visiting college, schools and farmers from the region.

I wish to thank the project for such a landmark in our training institution.

## Training Value Chain Management

**By Mark Bos, trainer Q-Point BV**

In the first week of February 2015 Sebastiaan Hetterschijt and Mark Bos, trainers of Q-Point, implemented a training on Value Chain Management. The aim of this training was to support the staff members of BAC and stakeholders in the theoretical and practical background of the new developed curriculum for the diploma program in value chain management.

This training was also used to strengthen the linkage with the 2 other Q-Point NICHE projects in Kenya with PWANI and SEKU universities, private sector stakeholders and the Dutch Embassy in Kenya. Resulting in total number of 22 participants joined this 5 day training, 16 BAC staff, 2 private sector stakeholders - Cosmas Lagat from Kabiyet Daries and Albert Ochenje from Agricultural Sector Development support programme - 2 staff members of PWANI, 2 staff members of SEKU and a guest lecture of Mr. Melle Leenstra of the Dutch Embassy in Nairobi for 70 students of Bukura.

*All participants of the training*.

During the training they learned how to analyse the value chain and how to come with improvements. This methodology, is called the Network Improvement Framework (NImpF-Tool) methodology, it has been introduced to diagnose and change networks in value chains.

*Guest Lecture Mr. Melle Leenstra.*

**The training resulted in 3 action plans to integrate the learning outcomes and NImpF - methodology in the BAC course units.**

Throughout intensive group work the Dairy Value Chain has been analyzed from the perspective of BAC course unites:

- Principles and Practices of horticultural crop Production (Unit Course HORT322);
- Ruminant Production Systems (Unit Course ANSC312);
- Principles of Agri-Business and Value Chain Management ( AGEC 142).

The training week resulted in 3 action plans to integrate the learning outcomes and NImpF methodology in the BAC course units.

*The participants listen attentively to the lecture of Mr. Melle Leenstra.*

## Synergizing Agriculture and Nutrition for a healthy and intellectually wealthy nation

**By Bilha Naandi Wanyonyi, Senior lecturer Home Economics section, Bukura Agricultural College**

I greatly appreciate NICHE through Bukura Agricultural College for the humbling opportunity to pursue Masters of Science in Food Nutrition and Dietetics on scholarship at Kenyatta University, Kenya.

During my course, I learnt that a healthy, highly intellectual and productive country's workforce depends on the humans 'first critical 1000 days' where adequate nutrition must be provided. From conception, maternal health is pivotal in determining nutrition and health status of the fetus. World health Organization (WHO) emphasizes exclusive breastfeeding for first 6 months of life that is critical for a child's immunity and holistic (Intellectual and physical)development, alongside administration of all scheduled micronutrients and immunization.

*Taking length of 7 months old child.*

After 6 months, gradual complementary feeding with food whose nutrients are non-antagonistic is crucial to maximize on all consumed nutrients. Food Security throughout one's life determines dietary diversity, which is expedient for adequate health and nutrition. Hidden hunger due to micronutrient deficiencies and lifestyle/non communicable diseases have

posed a health threat to humans. During my course study, field work on Food Security and Nutrition Assessment among children under 5 years was done.

*Taking the child's weight using a salter scale during a nutrition survey in Kakamega County. These were used to calculate Weight for Height Z- scores (WHZ ) and Weight for Age Z- scores (WAZ) based on WHO standards for individual children.*

My research topic on Kitchen Gardening, Dietary Diversity and Nutrition Status among Children 6-23 Months in Kakamega County, Kenya. It will be a comparative study on Nutrition status and dietary diversity among these children, half of sampled households with kitchen gardens and another half without. It will establish whether there is a relationship between kitchen gardening, Dietary diversity and Nutrition status of these children as well as if there is synergy between crops grown, their nutritional importance and subsequent consumption.

**I anticipate that this study will enable researchers relate food promoted in agriculture to appropriate human nutrition. In addition, Food Science students will be well trained in practical Nutrition Assessment, acceptable value addition and enriching of foods for optimal nutrition and health.**

*Taking of Mid Upper Arm Circumference (MUAC) for pre-schoolers as a proxy measure for nutrition assessment.*

## Gender in Research and Extension workshop

**By Olivia Ansenk, trainer Q-Point BV**

In Januari of this year, I had the pleasure to facilitate a workshop whereby the Research, Extension and Gender Committee of BAC participated. The theme of the workshop was "Gender in Research and Extension". To have the three committees together was very effective to streamline research/extension agenda's and activities.

Together we first of all looked at the broader picture: Why Gender in Agriculture? Then we looked at: How to integrate gender in the Research,

Development & Extension cycle, focusing on what BAC can do to ensure gender responsive agricultural research, development and extension?

Research, Development & Extension Cycle:
1. Priority-setting stage
2. Research and development stage
3. Extension services
4. Adoption stage
5. Impact assessments

This was followed by presentations and groupwork on key concepts and methodologies to integrate gender in research. Namely Gender Analysis (Harvard Tool), Kabeer's Social Relations Approach, Chain Empowerment Matrix and data needs/considerations looking into key areas in which individuals need to be identified.

The workshop also paid attention to gender-responsive extension strategies that have proven to be successful and best practices to address gender in value chains.

*Joseph M. Mutuku presents groupwork outcome.*

Finally a gender guideline was developed to assess the gender-sensitiveness of mainstream extension and research proposals together with an Action Plan to ensure gender sensitive extension and research service delivery within BAC.
I very much appreciated the valuable contributions of the participants in the workshop.

## Masters course in Soil Science

**By Stephen Oyamo, student Msc Soil Science**

I am grateful to the NICHE for the opportunity given to me to pursue a Masters course in Soil Science. This course entails a comprehensive study of the physical and chemical processes taking place in the soil with their subsequent effect on the growth of crops.
This is indeed a very relevant study at such a time when our soils in the Sub Saharan Africa have deteriorated due the continuous cultivation without proper replenishment. The Research I am doing seeks to find means of rehabilitating these nutrient depleted soils by using various organic materials.

*Experimental plot showing the various treatments of maize.*

I am enjoying the study due to gaining knowledge on the roles organic materials can play in increasing soil fertility in these soils. My vision is that after completion of

this study, we shall establish a demonstration field in Bukura College and perform various soil amendments to raise the soil fertility and invite farmers to learn how they can rehabilitate their soils.

*Soil profile in one of my sites showing the soil horizons*.

However Soil science Research is very expensive, as it involves collecting many soil samples and taking them to the laboratory for nutrient analysis. The challenge has been the cost of lab chemicals which are very expensive. I am supposed to do nutrient analysis for 84 plots per experimental site at the beginning, in the middle and at the end of each season. In my research, I planted maize in two sites, one in Bukura College and the other in Butere for two seasons, the long and short rains.

## Curriculum development workshop

**By Owate wambayi, principal consultant Micas Limited, workshop facilitator**

***Main purpose of the workshops in February***

The main purpose of the workshops on curriculum was to modularize the BAC certificate curriculum so as to meet the requirements of TVET Act. This workshop was held on 24th -27th February 2015, at Bukura Agricultural College and at the Golf Hotel Kakamega. The workshops cover the following areas:

- Certificate in Agriculture –Crops option.
- Certificate in Agriculture-Horticulture option.
- Certificate in Agriculture-Dairy option.

***Objectives of the workshop***

1. To develop occupational standards to meet the competencies that are required by industry.
2. To translate the occupational standards into a curriculum for training.
3. To convert the certificate courses in BAC into modularized curricula.

***Important lessons and recommend-dations of the workshop of 24th -27th February:***

- Competency based education and training is almost 90% practical.
- TVET prepares trainees to be entrepreneurs, an employers and/or employable.
- Modularized curriculum is flexible.
- With CBET, the content of a curriculum is relevant, graduates can do their work well, curriculum is modularized and assessment is based on occupational standards.
- The workshop time was not adequate to enable the participants translate the Occupational Standards into Curricula

***Main purpose of workshop in March/April***

On 31st March – 2nd April there was a continuation of the workshops in Kabula. The main purpose of this workshops on curriculum was to modularize the BAC certificate curriculum so as to meet the mandate of TIVET. There were 11 participants

***Conclusion of all workshop***

The workshop objectives one and two were adequately achieved. Based on the outcomes achieved it was evident that each member had understood the processes of developing the occupational standards and translating them into a curriculum. Objective number three was partially achieved due to time constraint. The members were able to translate the occupational standards into a curriculum for only the core competencies. However the institution (BAC) is now in a position to provide client driven competencies that meet the industry needs due to the developed modules.

***Recommendations***

1. More time should be allocated so that the members can consolidate both the core, basic and common competencies into a comprehensive certificate curriculum.
2. There is need to form a strong collaboration with industry in order to develop the proper occupational standards that would meet the industry demand.

## Partners

**Q-Point BV Naaldwijk**

**HAS Den Bosch**

**Radboud Universiteit Nijmegen**

**DLV Plant Wageningen**

**Egerton University**

## Requesting organisation

**Bukura Agricultural College**

## Donor

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## Colophon

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