Enhancing Production, Postharvest handling, Value Addition and Marketing of Indigenous vegetables (Cowpea, Nightshade, pumpkin, Amaranth, Spider plant), Mushrooms and French Beans among Smallholder Farmers in Kenya

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Collaborators:
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3. Prof. Margaret Hutchinson, (UON)
4. Dr. Fredrick Musieba, (KIRDI)
5. Dr. Esther Kioko and Dr. Muthoka (NMK)
6. Dr. Andika, (Jaramogi Oginga Odinga University of Science and Technology)
7. Mr. Wanyeki J (EAN)
Goal

- Contribute to increased production, post harvest handling marketing and utilization of indigenous vegetables, French beans and mushroom products to transform the vegetable production subsector into a commercially oriented enterprise for food safety and nutrition security, increased household incomes and employment creation, with due consideration of environmental safeguards, social, and gender issues.
Objectives

Overall objective
• To increase production, value addition, marketing and utilization of indigenous vegetables, French beans and mushroom products among smallholder farmers in Kenya.

Specific Objectives
• To enhance safe production of indigenous vegetables, French beans and mushroom products through IPM practices.
• To improve postharvest handling, value addition and utilization of indigenous vegetables, French beans and mushroom products.
Objectives (Continued)

• To enhance marketing opportunities for indigenous vegetables, French beans and mushrooms among smallholder farmers.

• To enhance mechanisms for information, communication and knowledge sharing along the indigenous vegetable, French beans and mushroom value chain.

• To undertake initial project screening with a view to identifying environmental, social and gender concerns that must be addressed together with the pests in the proposed research project.
Outcomes

• Availability of high quality and affordable seed and spawn for IVs, French beans, and mushrooms, respectively.

• Reduced vegetable postharvest loses along the value chain and increased volumes of high quality vegetables in markets.

• Increased range of vegetable products and per capita consumption.

• Increased smallholder and community awareness and consumption of IVs, French beans and mushrooms; and overall improved incomes from vegetable enterprises disaggregated by gender.

• Improved food safety and acceptability of the indigenous vegetables along the Value Chain within an expanded market catchment.
Summary of Key Achievements

1. Crop Improvement

- Baseline survey in all project sites for all the AIVs, French beans and mushrooms conducted
- Germplasm for AIVs collected in the project sites and evaluated for preferences by the consumers and other value chain actors
Farmers trained on AIV practical lessons on weeding, thinning and harvesting
2. Agronomic packages

• Planting, bed preparation, incorporation of nutrient and soil management practices, seed sowing and early crop care conducted for all the vegetables.

• Mineral Nutrient Sources & Leaf Harvesting Intensity Effects on Leaf Vegetable Yields evaluated.
3. Post harvest and value addition

- Crude bulk handling of vegetables evaluated and farmers sensitized on loses caused.
- Mainstreaming use of produce crates for bulk handling of vegetables
- Recipes Development for mushrooms developed
4. Market, marketing and market linkages

• Survey to determine pricing trends, competing products, challenges to marketing and consumer preferences on AIV vegetables

• Provided innovation platform for different French bean value chain actors to interact and share information.
5. List of reports, bulletins, extension pamphlets and journal publications

- Eleven (11) Masters students and two (2) Ph.D students trained on the project.
- Six (6) Trainings conducted on various topics of the project
- Mushrooms recipe manual
- Three (3) KAPAP Vegetable Project Planning workshops
- Three (3) Local newspaper reports (2014) and two radio reports (2014) and three (3) Television appearances
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<tr>
<th>No.</th>
<th>Student name</th>
<th>Level of study (BSc., MSc., PhD)</th>
<th>Year of study</th>
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<td>1</td>
<td>Bernard Ogolla Ouma</td>
<td>Msc</td>
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<td>Integrated Management of thrips on French Beans in Embu East</td>
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<td>D. M. Wahome</td>
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<td>Investigation Of Defoliation And Mineral Nutrient Management Effects On Pumpkin Fruit And Leaf Yields</td>
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<td>Geoffrey Ongoya</td>
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<td>Integrated Management Of Snap Bean Pests using Seed Dressing, Non-synthetic Foliar Sprays and Maize Intercrop</td>
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<td>Effects of defoliation and irrigation water management effects on pumpkin fruit and leaf yields in the Kenyan highlands</td>
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<td>J. K. Kirimi</td>
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<td>Evaluation, characterisation and development of pure seeds of dual-purpose pumpkin landraces in Kenya</td>
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Deepening and up scaling project:

1) Specific Objectives

- To increase availability and supply of clean seed through capacity building, improved cultural practices, bulking, packaging, storage and distribution channels in the study focal area.

- To reduce post harvest losses in AIVs, and mushrooms through promotion of better post harvest handling practices, storage, transport and preservation among small holder IVs farmers.
Objectives….cont

✓ To improve value addition and utilization of AIVs, and mushroom products through development of innovative processed products with improved shelf life.

✓ To develop markets, access and agribusiness opportunities for AIVs, French beans and mushrooms among smallholder farmers.

✓ To develop mechanisms for information, communication and knowledge sharing along the indigenous vegetable and mushroom value chain.
Expected Outcomes

1. Increased availability of clean AIV seeds for farmers involved in production in focal area in Butere Mumias.

2. Reduced vegetable postharvest loses along the value chain and increased volumes of high quality vegetables in markets in focal area in Butere Mumias.

3. Increased range of vegetable products, business strategies and per capita consumption in focal area in Butere Mumias.
4. Improved food safety and acceptability of the indigenous vegetables along the Value Chain within an expanded market catchment.

5. Increased smallholder and community awareness and consumption of IVs and overall improved incomes from vegetable enterprises disaggregated by gender.

6. Youth involvement in AIVs value chain
Achievements to date

1. Inception workshop held in Mumias on 15\textsuperscript{th} and 16\textsuperscript{th} May 2014. \textit{(Report available)}
a) Farmer training workshop on quality seed production and post harvest technologies conducted on 14\textsuperscript{th} and 15\textsuperscript{th} July 2014 in Mumias. 37 farmers were trained and issued with certificates. List of attendance available for the trainee farmers.

b) French beans Utilization (Food fair) held at Kavangu Catholic Church Grounds, Embu on 12/06/2014.(report available)

c) Four students attached to the collaborators have set up experiments at the Mumias focal site to determine improved cultural practices for the production of the AIVs and as training practicals for the farmers in production methods.

d) Farmers Field Schools established in Embu to share production technology with farmers and extension service
a. Post harvest handling through use of polythene bags and crates for freshly harvested vegetables was demonstrated practically during practical sessions in the field after the training.

b. Tunnel solar driers have been installed at the focal site and value addition on AIVs has started.

c. Development of AIV products undertaken

d. Marketing of value-added traditional vegetables at trade fairs and agricultural shows undertaken

e. Rapid Market Appraisal for value added vegetables undertaken
f. Conducted experiments on effect of crop protection and cultural practices on seed quality in the focal area

g. Establish promotion centers for developed AIVs products and promote the products.

h. Video documentary of project inception workshop prepared.

i. Documentary from KAPAP success in vegetable production shared with farmers at focal site