

## Factsheet final findings Applied Research Fund Call 1



## Macro-nutrient fortification of first-line food cereals with milk protein to produce affordable value added cereal products in Uganda

### Summary

The project objectives were twofold: To support the Value Addition Institute's (VAI) current protein-fortification efforts in order to produce the most affordable protein-fortified flours and undertake wide scale commercialization of the products. The focus country of the project was Uganda, but the project has wide regional relevance to East Africa. Specifically, the project sought to use a macro-nutrient enhancement approach to improve the nutritional value of commonly consumed cereals in Uganda/East Africa. As a result of the project, products enhanced with animal protein from cow's milk have been developed and marketed. The upscaling activities are ongoing with overwhelming consumer response. The project also resulted in developing new instant products, but these need further research perfection. Although the actual impact of the project on malnutrition could not be ascertained in the short project period, there is no doubt that anybody who consumes this cereal blend that contains milk proteins, solves many nutritional challenges. Partnerships to assist in upscaling activities and carrying out further research on other aspects of the products are being sought.

### Research findings

- New processing approaches: The project explored and developed alternative processing approaches for the products. For instance prospect of integrated drying of the mixture of liquid milk with flour in one process was initiated and preliminary findings showed that it was feasible. More work is needed to complete this research process.
- Through improved product quality control procedures in the value chain of the products, the shelf life of the products was improved.
- New products were also developed as a result of germination of cereals in order to compare them with the non-germinated cereals. The effect of different processing treatments, namely germination, roasting (for cereals and pumpkin seeds) and blanching (for vegetables), on the nutrient content and sensory acceptability was evaluated. Results showed that the improved products were readily acceptable to consumers.
- At the end of the project, a sample exit survey of supermarkets showed that 79.3% of the supermarkets was aware of the products.
- Because of improvements of the products during the project, the product has become certified by the Uganda National Bureau of Standards.

### Outcomes achieved

#### *When are you sending us more??*

In a distance of more than 600 kilometres from the VAI/Afri-taste factory, a phone rang. The caller (Julia) is a mother from Kisumu town in Western Kenya: "Is this the Afri-taste products factory?" Salome, our reception officer replies her: "Yes you are home". Then she relaxed a bit, and said: "How can I get your products, I bought few on the Busia border and I can't find them there, not even at that particular shop!" She added: "My children have liked them so much". Since then she has never missed the Afri-Taste products and her children are growing happy and healthy. She has also been widely promoting the products in her local town.

### ***Our Afri-taste products now this far!***

"Wawoooo, wawooo, woowooo, you mean we can now sell in my local district of Kayunga. I found our products this far out of the city! We have really improved significantly. These products and their packaging, you cannot believe they are made in Uganda. This is wonderful. Congratulations and thanks also to Danex Limited for providing co-financing to scale production and definitely NWO-WOTRO for supporting product improvement." Aaron Bukenya, board member of VAI, while commenting on the upscale marketing after finding the products in his local town.

<b>Project messages to</b>	<p><b>A) Actors from private sector:</b></p> <ul style="list-style-type: none"><li>• The project has showed that it is possible to conform to all available food standards and produce a high quality product. With a high quality product, it becomes easy to penetrate the market.</li></ul> <p><b>B) Civil society and practitioners organizations:</b></p> <ul style="list-style-type: none"><li>• Civil society should interest themselves in the new food products on the market to ensure that manufacturers maintain high quality products on the market. This will ensure that products being marketed are nutritious and safe.</li></ul> <p><b>C) Policy makers:</b></p> <ul style="list-style-type: none"><li>• There is a need for government and other policy makers to make policies and guidelines that support entrepreneurs to do research and improve their products.</li></ul>
<b>Knowledge products</b>	<ul style="list-style-type: none"><li>• <a href="#">Production of nutrient enhanced millet-based composite flour using skimmed milk powder and vegetables</a>. <i>Food Science &amp; Nutrition</i> 2019,7: 22-34.</li><li>• <a href="#">Effect of skimmed milk powder and vegetables on the shelf stability of millet-based composite flour</a>. <i>Journal of the Science of Food and Agriculture</i> 2018, 99:2030-2036.</li></ul>
<b>Knowledge networks</b>	PAEPARD, AgTechxchange, Agriculture-Nutrition Community of Practice, Agrilinks, among others
<b>Knowledge co-creation</b>	Food and Nutrition Solutions Ltd (FONUS) and Wageningen University and Research (WUR) were able to help the project leverage on other university resources and networks to make project implementation smooth. Without their collaboration it was going to be a hurdle. Equally, WUR and the Food and Business Knowledge Platform (F&BKP) also helped a lot in sourcing for useful partnerships and contacts from the Netherlands and enabling positive collaborations and communication with Dutch companies. The WUR and F&BKP also initiated scale-up discussions between VAI and some a Dutch impact investment companies. Although this has not been successful, there are promising future prospects. Over all without these synergies and co-creation efforts the project wouldn't have managed to improve products and launch up-scaling.
<b>Consortium Partners</b>	<ul style="list-style-type: none"><li>• <a href="#">Value Addition Institute (VAI)</a></li><li>• <a href="#">Wageningen University, Food Quality and Design</a></li><li>• <a href="#">Food and Nutrition Solutions Ltd, Makerere University (FONUS)</a></li></ul>
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