<table>
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<th>TITLE</th>
<th>Development and Evaluation of Sweet Sorghum (<em>Sorghum bicolor</em> L. Moench) Grain as an Alternative Energy Source in Chicken Feed Formulae</th>
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| Purpose | To diversify and expand the range of utilization of sweet sorghums through complementary value addition and integration in chicken feed as an alternative energy source |
| Project Summary | The poultry sub-sector is an important economic mainstay for Kenya’s rural smallholder families. It is lately one of the fastest growing and promising livestock enterprises in Kenya. In commercial production system, poultry feed accounts for more than 70% of the cost of production, making poultry farming a highly volatile and competitive business among smallholder farmers. Poultry farming relies on commercially produced chicken feed which is heavily reliant on maize and wheat as energy sources. The high cost of feed is due to these ingredients that are expensive to produce and/or are in direct competition with human food and other uses. Currently, Kenya is faced with critical shortage of animal feed raw materials which has resulted in a rapid increase in animal feeds prices; this has been identified as a threat to the growth of the sector. An intervention that can be taken to alleviate high cost of feed is the use of relatively low priced alternative energy sources like sorghum as an ingredient in poultry feed. In an attempt to address the challenge of the high cost of production, this study seeks to formulate chicken feed using some of the low tannin sweet sorghum varieties as an alternative energy source, and evaluate the performance of these diets on quality of carcass and eggs of broilers and layers respectively. This study |
The Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) builds on a previous project titled “Technology Adoption for Industrial Exploitation of Sweet Sorghum” funded by the JKUAT Innovation fund, which collected and determined the agronomic performance of a number of Sweet Sorghum varieties from Eastern Africa, India and Brazil. The project will be conducted by two M.Sc. students assisted by four undergraduate intern students and will be implemented in JKUAT Kiambu county. JKUAT will collaborate with Kenyatta University and the Sorghum Value chain Development Consortium. The outcome of the study will be development of cheap and commercially viable feed formulations that will reduce the cost of poultry feed but improving the productivity, incomes and livelihoods of smallholder poultry farmers.

| Country and specific locations | Kenya, Kiambu County |
| Participating Institutions | Jomo Kenyatta University of Agriculture and Technology, Kenyatta University and the Sorghum Value Chain |
| Start Date | 1st July, 2015 |
| End Date | 30th July, 2017 |
| Budget | USD 59,572 |
Willis O. Owino (PhD)

Dr. Owino is a senior Lecturer at the Department of Food Science and Technology, and the Manager of the Food Technology Centre (FOTEC) in JKUAT. He graduated with a B.Sc. in Food Science and Technology (1996) at JKUAT. Dr. Owino obtained Master of Science in Bioscience Systems (2001) and PhD in Postharvest Biology and Technology (2004) from Okayama University funded by the Japanese Government Scholarship. He was a Postdoctoral Research Fellow at the Gene Research Centre, Tsukuba City, Japan under the Japanese Society for Promotion of Science (JSPS) fellowship from 2004-2006. He was a United States Department of Agriculture; Foreign Agricultural Service (USDA-FAS) supported Faculty Exchange Fellow at the College of Agriculture, Food and Natural Resources, University of Missouri, Columbia, USA, in 2012. Dr. Owino is involved in a number of research projects including Technology Adoption for Industrial Exploitation of Sweet Sorghum in Kenya. Through the research work he has carried out adaptation trials of sweet sorghum sourced from East Africa, India and Brazil. He has also developed a number of value added products from sweet sorghum. He was part of the team that developed the proposal that gave birth to the UniBRAIN Agribusiness Incubator, Sorghum Value Chain Development Consortium (SVCDC) funded by Danida. Dr. W. Owino is the Principal Investigator of a number of research projects including the RUFORUM funded Graduate Research Grant (GRG) focused on Developing and Evaluating sorghum based poultry feed. His research interests include Industrial exploitation, utilization and Value addition of sweet sorghum, Postharvest Technology and value addition of food products and genetic diversity of under-exploited and under-utilized native/indigenous crops.

Selected Publications


North, R., Darr, D., Gebauer, J., Mithöfer, D., Owino W. O., et al. (2014). Promoting the Use of


Selected Funded Research Projects


- **2014-2017**: Up-Scaling of Sweet Sorghum Production and Production of Sweet Sorghum Syrup: Jomo Kenyatta University Innovation Fund. US$ 60,000. **Principal Investigator**.


- **2014-2016**: Innovative cooling option for small holder farmers: Kenya Feed the Future Innovation Engine (KFIE-USAID) **US$100,000**. **Partner**.