



Agri-Transfer

UK partnership to support the uptake of new crop varieties by smallholder farmers and advancements in agricultural and dissemination technologies

In March 2015 NIAB secured BBSRC funding for a project in Kenya to support the uptake of new wheat varieties by smallholder farmers and promote new agricultural and dissemination technologies.

Part of the BBSRC Flexible Interchange Programme (FLIP), an initiative that supports the exchange of knowledge, technology and skills between people from different research backgrounds, the Agri-Transfer partnership includes NIAB, the Kenyan Agriculture and Livestock Research Organization (KALRO, formerly KARI), and two charitable development organisations, the Malaysian Centre for Commonwealth Studies (MCSC) and the Cambridge Malaysian Education and Development Trust (CMEDT).



Agri-Transfer pulled together the diverse and complementary expertise of these partner organisations to develop a workable and sustainable dissemination model for agronomic data collected on new crop varieties (using wheat as the test crop) for smallholder farmers in Kenya. It addresses the widespread problem in developing countries that a full understanding of the potential benefits of improved crop varieties and advancements in agricultural technology is often not realised. Many farmers do not have access to quality seed of the new varieties, nor the agronomic information required for optimal production, and poorly functioning agricultural extension services are a major barrier to the implementation of advances in agricultural research and technologies. These issues affect all crops which lack a strong formal seed system and are a bottleneck in making effective use of all public sector agricultural R&D.

Agri-transfer worked with two self-help farmer-based organisations in Nakuru County, Kenya where farmers ran wheat field trials of new Kenyan wheat varieties under the direction of KALRO and NIAB. The use of Elimsis (an ICT-based platform developed by MCSC and CMEDT, <http://elimsis.org/>) together with other methods currently used by NIAB and KALRO, were evaluated as methods of disseminating data obtained from the field trials to smallholder farmers.

Progress update - April 2016

Farmer-managed trials and demonstrations

Demonstration plots were grown on a five-acre farm in the Njoro Ward of Nakuru County, about 4 km from KALRO's centre in Njoro. The farm was jointly leased and managed by a smallholder farmers' group called Tuinuane. The farmers rented the land and provided labour for manual operations on the farm, while Agri-Transfer provided all bought-in inputs and machinery. The demonstration plots were

established in May 2015 to test and demonstrate agronomic practices (land preparation; pest, weed and disease control; fertilizer choice and application, etc.) and different wheat varieties.

Soil sampling and testing



Land preparation- comparing chisel plough (conservation tillage) and disc plough



Planter calibration



Identifying pests, diseases and physiological problems



Chemical application to control pests and disease



Comparing varieties and agronomic practices

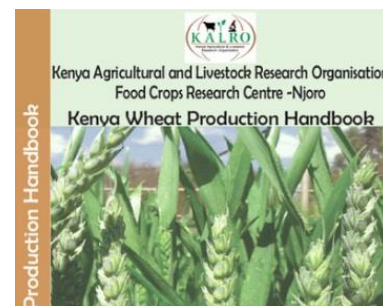


Harvesting and post-harvest handling



Wheat production handbook

All the major operations and practices carried out on the demonstration farm were documented to create audio, video and photographic learning/training material. This material has now been developed into a digital wheat production guide (including information on off-farm activities such as agro-economic planning, marketing, processing and value addition) in the form of a mobile phone application, called Elimsis (Elimsis is available to download from the Elimsis website, by going to <http://elimsis.org/download-the-elimsis-mobile-application/> on an Android device).



At the same time, the Agri-Transfer team worked with other KALRO members of staff to develop a printed wheat production guide, an updated version of an old KALRO production guide last published in 2003. In the 2016 season, Agri-Transfer began a program to compare the efficacy of the digital and the printed wheat production guides as training platforms to identify the optimal approach for instructing smallholder wheat farmers in the practices of commercial wheat production.



The Wheat Handbook and the Elimsis WheatApp were officially launched on the 15th February 2017 at an event held at KALRO-Njoro, Kenya.

Farmer-managed certified seed production

A 5-acre seed multiplication plot was sown with the KALRO Eagle 10 variety in Mau Narok Ward of Nakuru County, about 30km from KALRO's centre in Njoro. This was carried out in collaboration with the smallholder farming group called Pambazuka, teaching them how to produce certified wheat seed, while multiplying seed for their own use in the 2016 season. The farmers rented the land and paid for all manual operations on the wheat crop, while Agri-Transfer supplied bought-in inputs and machinery, and advised the farmers throughout the process: from soil sampling right through to harvest.

The seed was harvested in March 2016, with a total yield of 7 tonnes from the 5-acre plot, i.e. significantly higher than the national average. The Pambazuka Farmer Group members will sell the seed among themselves and within their community. In the 2016 season the Group will grow more wheat seed on another 5-acre, jointly-rented plot.



Harvesting



Agri-Transfer Wheat Handbook and WheatApp launch, KALRO-Njoro, February 15th, 2017

The event was organised by the KALRO-Njoro team, as the first formal launch of the education materials developed during the Agri-Transfer project: the Wheat Production Handbook and the Wheat Production digital Elimsis course, WheatApp.

The book was for sale at the event for a nominal price of 300 KSH (3 USD), while the KALRO team set up wi-fi connection in a tent to help farmers

download the WheatApp and to register for the wheat course. In addition, KALRO staff set a tent for demonstrating technologies developed in the organisation aimed at improving productivity, such as soil testing, the value of improved wheat varieties and also on alternative crops. Information on the safe use of chemicals and on novel practices for value addition was also provided.



The event was attended by about 150 visitors, composed of smallholder farmers from several wheat-growing counties and by representatives of local government institutions (e.g. Sub-county Agricultural Officers), and of relevant organisations operating in Kenya. The latter included the Cereal Growers Association, the International Centre of Maize and Wheat Improvement (CIMMYT), the Syngenta Foundation, KEPHIS, Bayer and farming financing institutions (list attached). Just under 30% of the visitors were women, which is a good level of participation for this time of the year.

Many participants voiced the importance of technologies and information geared towards smallholder farmers, and the importance of embracing modern forms of information and training rendered possible by digital technology.