Agriculture contributes about 26% directly to the gross domestic product (GDP) and a further 25% indirectly through linkages with agro-based and agri-related industries. Thus the sector is the driver of Kenya’s economy and livelihood for the majority of the population. The sector accounts for 65% of national exports and provides more than 70% of informal employment in the rural areas.

The Ministry of Agriculture, Livestock and Fisheries (MoALF) key strategic areas of policy concern includes; increasing agricultural productivity and incomes especially for smallholder farmers, emphasis on irrigation to reduce over-reliance on rain-fed agriculture in the face of limited high potential agricultural land, encouraging diversification into non-traditional agricultural commodities, value addition and agri-business development. The purpose is to reduce vulnerability, enhance food security and reduce nutrition related challenges, ensure environmental sustainability and encourage private-sector participation.

Various policies and strategies have been developed and operationalized to address the sector’s performance. Vision 2030, Kenya’s long-term development blueprint identifies agriculture as key to attainment of economic development. The vision is implemented through five-year Medium Term Plans (MTPs). In an effort to implement the overarching national policies, the agriculture sector has developed and operationalized various policies and strategies whose thrust is provided in the following sections. Among the key policies is the National Food and Nutrition Security Policy which aims to achieve good health and high nutritive value for all Kenyans; to increase the quality and quantity of food available, accessible and affordable to all Kenyans at all times; to protect vulnerable populations using innovative and cost effective safety nets linked to long term development.

Consequently, there is need to transform the agriculture sector to meet the demands of the increasing population. The ASALs can play a significant role in this sector through sustainable, climate smart agricultural practices. This includes application of novel technology by farmers such as planting of drought-tolerant crops and improved livestock production practices.

To respond and deliver successfully on the agricultural sector, the Ministry recognizes agricultural research as key in developing relevant technologies and innovations and catalysing their adoption. The European Union (EU) in collaboration with the Government of Kenya funded the ASAL-APRP to address the challenges of food and nutrition security. The objective of this project is to increase agricultural productivity of the ASALs through development, distribution and application of appropriate technologies.

The project involves collaborative efforts and synergies of various stakeholders including, Kalro, MoALF, County Governments, farmer groups and the private sector. Congratulations to the Kalro team and their partners for making the ASAL-APRP project a success.

The Ministry of Agriculture, Livestock and Fisheries (MoALF) is determined to transform the ASALs into major contributors to the national development. It is expected that the livestock sector in the ASALs will contribute immensely to the national agricultural GDP.

The Ministry seeks to improve the livelihood of Kenyans and ensure food security through creation of an enabling environment and ensuring sustainable natural resource management. This can be achieved through supporting agricultural research, promoting technology delivery and knowledge dissemination.

Increased agricultural and livestock production in the ASALs can be intensified through development and upgrading of better pastures, improved livestock breeds, enhanced livestock disease-free status and efficient use of resources. It therefore befits the Ministry of Agriculture, to a robust system that includes relevant institutions of higher learning, several independent research institutes and the private sector. However, each institution conducted research independently with minimal consultation, which led to inefficient use of resources. It is therefore necessary to establish a common research system in the national agricultural research system (NARS) into a dynamic, responsive, coordinated and well-coordinated system driven by a common vision and goal.

Consequently, the NARS policy was developed in 2012 to inform the process of enacting sound laws for effectiveness of national agricultural research system (NARS). It provides the powers KALRO to promote, coordinate and regulate agricultural research, development and execution of research in Kenya. Through its mandate, KALRO is to streamline research in crops, livestock, genetic resources and biotechnology and expedite equitable access to knowledge, information and technologies in agriculture.

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KALRO is the premier agricultural and livestock research organization in Kenya that provides leadership and demand-driven solutions to agricultural challenges locally, regionally and internationally. Thus KALRO not only focuses on addressing the national challenges through cutting-edge research but also leads globally through partnerships, collaboration and networking.

KALRO’s Vision is ‘to be a globally competitive agricultural and livestock research organization’. The Mission is ‘to contribute to the growth of the agricultural sector through sustainable development in Kenya. Through its mandate, KALRO is to streamline research in crops, livestock, genetic resources and biotechnology and expedite equitable access to knowledge, information and technologies in agriculture.

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BACKGROUND OF THE ASAL-AGRICULTURAL PRODUCTIVITY RESEARCH PROJECT (ASAL-APRP)

The ASAL-APRP implemented a multi-faceted approach to improve livestock production through development, distribution and application of appropriate technologies. The project set out to promote and upscale indigenous chicken, pasture production and control of livestock diseases.

Improved Indigenous Chicken

ASAL-APRP in collaboration with KALRO Naivasha Centre is involved in the breeding and distribution of the improved KALRO indigenous chicken dubbed KALRO kuku kienyeji. The improved chicken lays 200 to 300 eggs per year in comparison to the local chicken’s 80 to 100 eggs. It lays the first egg at five months compared to the local chicken which starts laying at eight months and matures within 4 months as compared to the local chicken which takes 8 months to attain table-weight. Over 950,000 chickens have been distributed to farmers in partnership with County Governments, Anglican Development Services (ADS), the Sustainable Agriculture and Community Development Programme (SACDEP, Kenya) and other stakeholders.

A pH-based pen-side kit for detection of subclinical mastitis

The ASAL-APRP, in collaboration with Eastern Africa Agricultural Productivity Project (EAPP) and Masinde Muliro University have developed a test for detection of subclinical mastitis. The innovation has been validated and proved to be effective in detecting subclinical mastitis in cattle and camels. It addresses the milk value chain at production level, where mastitis disease is a major constraint. The technology has been developed for use by farmers, animal health service providers, milk vendors and milk processors. The project is awaiting registration for eventual commercialization.

Development and up-scaling of better pastures

Feed shortage is a major challenge to livestock production in the ASALs of Kenya. To address the problems, reseeding using selected indigenous grass species is widely promoted. ASAL-APRP has four Result Areas: Capacity Building, Food and Nutrition Security, Livestock Productivity, and Up-scaling/Out-scaling Appropriate ASAL Knowledge, Information and Technologies.

FOOD & NUTRITIONAL SECURITY INTERVENTIONS

Food and nutrition security is a major challenge in the arid and semi-arid areas (ASALs) of Kenya. To address these challenges, ASAL APRP targeted dryland crops for sustainable and affordable food production that meets basic nutrition requirements. The four varieties are Nyota, Angaza, Metameta and Faida. They have a yield advantage of more than 2 tons per hectare compared to 1.5 tons per hectare of the high yielding cassava variety. ASAL-APRP ensured that farmer groups in the Eastern region, had access to clean and disease-free cassava cuttings. The project also trained farmers on agro-economic aspects and agro-processing of cassava.

Green gram

ASAL-APRP developed and released four micronutrient rich bean varieties that are high yielding and drought tolerant. The project produced a kit for diagnosis of subclinical mastitis. These include Sorghum, Grain Amaranth, Beans, Cassava and Green Grams.

Sorghum

The demand for sorghum by the brewing and agro-processing industry has increased tremendously. ASAL-APRP partnered with Smart Logistics Solutions to form community production and marketing system (COPMAS), which has enabled bulking and marketing of the high yielding cassava varieties. The seeds are now available to farmers in Tharaka and other ASAL areas.

Grain Amaranth

Grain amaranth is a nutrient rich crop with proteins, calcium, phosphorus and iron. ASAL-APRP developed, validated and multiplied improved varieties to farmers. The project multiplied seeds and distributed to 15,000 farmers. ASAL-APRP in collaboration with the Catholic Diocese of Kitui (CDOK) identified vulnerable groups and sensitised them on its nutritional value.

Cassava

Cassava is a drought tolerant crop which can address food security in the Arid and Semi-Arid areas. ASAL-APRP distributed already developed superior varieties that were high yielding, early maturing and high in starch and low cyanide.

The project planted 55ha of cassava cuttings enabling farmers to access of over 500 cassava cuttings. ASAL-APRP ensures that farmer groups in the Eastern region, had access to clean and disease-free cassava cuttings. The project also trained farmers on agro-economic aspects and agro-processing of cassava.

Beans

Beans are highly nutritious with proteins, energy, zinc, iron, vitamins A and B complex. Zinc and iron deficient among the poor, pregnant women and children is a major cause of anaemia. ASAL-APRP breeding program targeted drought tolerance and high yielding bean varieties. The project produced and released four micronutrient rich bean varieties that are high yielding and will address nutritional issues in the general population and vulnerable groups. The four varieties are Nyota, Angaza, Metameta and Faida. They will be multiplied further by the KALRO seed unit and other interested seed companies for supply.

Kakamega County Governor, Mr. Wycliffe Oparanya (Center) and the Centre Director, KALRO Kakamega distributing the improved indigenous day old chicks to farmers.