

GRANDER SCOPE MAKES AGRICULTURAL RESEARCH EASY



AGRICULTURAL PRODUCTIVITY PROGRAMME FOR SOUTHERN AFRICA (APPSA)



Government of Malawi



Government of Mozambique



Government of Zambia



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Background

In the Southern Africa region where agricultural productivity is far below potential, a key strategy to facilitate improved agricultural productivity is to increase investments in agricultural research and development (R&D) to levels required to sustain viable agricultural R&D programmes that address current and future priorities. Given that groups of countries within the region share similar agro-ecological zones and farming systems, there is potential for finding shared solutions to common problems. Although technology spillover is already occurring within the sub-region, significant potential remains for expanding spillovers.

Against this backdrop, the Agricultural Productivity Programme for Southern Africa (APPSA) was conceived as a Regional Agricultural Research for Development initiative with the developmental objective of increasing the availability of improved technologies in the implementing countries. APPSA was launched in 2013 as a six-year project with the participation of three countries - Malawi, Mozambique, and Zambia.

The project was supported by the World Bank, and coordinated by the

Centre for Coordination of Agricultural Research for Development (CCARDESA).

The Research Approach

As a regional project, APPSA was based on partnerships and collaboration among participating countries. All R&D interventions were undertaken through collaborative R&D projects involving the participation of at least two countries. The countries coordinated national level activities to contribute to the achievement of common regional objectives, and they shared knowledge and technological outputs from their national programmes throughout the region. Through such collaboration, the APPSA investments generated not only national, but also regional benefits.

Achievements

Collaborative R&D efforts enhanced The research and development (R&D) cycle began with national consultations to prioritise R&D issues. Following the consultative meetings, a call for concept notes (CNs) was issued in each of the three countries, with the facilitation of CCARDESA. The developed concept notes were subjected to

national as well as regional peer reviews. Successful CNs were developed into full proposals, which were again subjected to regional peer reviews, after which R&D projects were recommended for support. Three calls for R&D proposals were made in 2013, 2014 and 2016, resulting in a total of 74 collaborative projects (25 in 2013, 24 in 2014, and 25 in 2016) being implemented across the 3 countries

Commodity/ Thematic Area	Total # Projects
Cassava	5
Climate Smart Agriculture	8
Legumes	28
Maize	21
Rice	10
Sorghum	2
Total	74

Each collaborative project was led by a Principal Investigator (PI) who worked with co-Principal Investigators (co-PIs) to address a common research problem across the countries. Evaluations on quality of science revealed that the R&D projects were generally well designed, covering the key R&D priorities and demonstrating how the work built on previous R&D work. The key activities undertaken, expected results, technology dissemination pathways and the

primary beneficiaries of the generated outputs were enunciated.

The collaboration generated notable studies around the following thematic areas:

- *Nutrition (vitamin A maize, Quality Protein Maize (QPM), high iron/zinc beans, utilization of grain legumes)*
- *Human health/food safety (aflatoxin, mycotoxin levels in maize and groundnuts)*
- *Mitigating the effects of climate variability (drought tolerant maize, legumes and rice)*
- *Soil/water management (soil fertility, CA technologies, water use efficiency)*
- *Promoting "new" cash crops (soybean, pigeon pea, rice)*
- *Post-harvest storage (small scale metal silo testing/fabrication; R&D on storage pests)*
- *Agro-processing, value addition (groundnut, bambara nut, soybean)*
- *Existing and emerging pest/disease threats (surveillance on maize lethal necrotic Disease (MLND); MLND resistance; Fall Armyworm management)*
- *Production and productivity (input use trade-offs, crop rotation)*
- *Scaling up dissemination (demonstration, field days, media efforts), etc.*

The collaborative R&D efforts achieved the following:

- 74 regional collaborative projects implemented
- 301 technologies, innovations & management practices (TIMPs) made available to farmers and other end users

- 4.6 million beneficiaries reached (35% female). Out of these, 41,300 are Lead Farmers.
- 160 new TIMPs generated
- 68 Technologies shared across countries



Development of Pro-Vitamin A maize varieties



Post-harvest storage=>small scale metal silos and super grain bags



Value Addition =>farmers showcasing soyabean products

Sharing of technologies among APPSA implementing countries and beyond

Duplication of efforts in research and development (R&D) work in the region costs millions of dollars every year. This is attributed to lack of coordination, limited research communication among R&D institutions and the beneficiaries. Knowledge exchange on developments in technologies, innovations, and management practices in agriculture need to be effectively disseminated if gains in research investments are to be realised. APPSA contributed largely to agricultural research and development by promoting regional collaboration and putting in place mechanisms to encourage technology generation and

dissemination across Malawi, Mozambique, Zambia and other African countries. APPSA project supported 74 R&D sub-projects which resulted in the generation of 160 TIMPS and more than 50% of the generated technologies were on improved seed varieties. These technologies were shared amongst APPSA participating countries as well as Zimbabwe, Lesotho, Swaziland, Tanzania and DRC, thus enhancing sharing of technologies in the SADC region and beyond.

Benefits of research collaboration demonstrated

Supported by partner institutions (CGIAR, Universities, Civil Society and Private Sector), the implementing institutions were able to demonstrate the benefits of research collaboration that went beyond improving productivity at household levels. The benefits included the strengthening of national institutional capacities to (a) redirect technology development on emerging priority areas linked to national policies and end-user identified constraints; (b) foster partnerships through joint proposal preparation and project

implementation; (c) promote innovation; and (d) improve generation and dissemination of improved technologies.

Collaborative research activities enabled bringing together commodity researchers to share experiences, skills, knowledge and research tools which broadly sharpened research skills for participating researchers. In addition to alleviation of isolation as well as sustained motivation through interaction, there was professional growth, particularly for the junior scientists. There was an increased exchange of germplasm for the enhancement of the research agenda. There was release, as well as dissemination of more technologies than in previous implementation arrangements within the respective National Agriculture Research Stations (NARS). The success of collaboration is also evidenced by the number of joint research publications by the scientists. By supporting work towards domestication of the SADC Harmonized Seed Regulatory System (HSRS) through APPSA, the countries were able to contribute to the SADC regional variety catalogue – a major boost towards improved seed movement in SADC region.



Groundnut Variety Development



Scaling up Dissemination => Field Day

Lessons learnt

- APPSA was a programme with a well-designed tool to foster regional collaboration in R&D. But, in order for the collaborative research to work effectively, besides researchers' undertaking on their commitment to the project, the memoranda of

understanding between the project implementing institution and participating national institutions should be legally binding to ensure full commitment from the involved institution(s).

- Relevance and quality of science in the R&D interventions can be further strengthened if the R&D interventions are able to adequately demonstrate (a) their contributions to increasing scientific knowledge, and (b) that the research topics were need based i.e. with evidence of substantive inputs from farmers and other key target groups regarding their principal constraints or the development of new opportunities.
- Formulation of multidisciplinary teams in implementing R & D sub projects is very important in achieving expected results. Inclusion of socio-economists in research projects facilitated some financial profitability analysis, while inputs from biometricians ensured statistical validity of experimental designs.
- Communication, trust and effective project management are key to successful collaboration.
- Interactions between individuals lie at the heart of an effective collaboration.



On station field day



Field trial on soybean production and utilisation



On station field day



Field demonstration on improvement on legumes

**Centre for Coordination of Agricultural Research and
Development for Southern Africa (CCARDESA) Plot 4701
Station Exit Road, Private Bag 00357, Gaborone, Botswana
Tel: +267 391 4991/7**

**Visit the CCARDESA Southern African Agricultural
Information and knowledge Systems (SAAIKS)
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