APPSA-Lesotho

COMPENDIUM OF STORIES

Department of Agricultural Research

WORLD BANK GROUP
Agriculture

CCARDESA
Centre for Coordination of Agricultural Research and Development for Southern Africa

ACKNOWLEDGEMENTS

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PREFACE

The compendium is a compilation of stories about project activities (research and development, agricultural extension, trainings, project management and monitoring) implemented under APPSA Lesotho. It is the mandate of the CWG to manage project communication and technology dissemination for visibility and awareness, knowledge sharing and collaboration among stakeholders.

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LIST OF ACRONYMS

APPSA	Agricultural Productivity Programme for Southern Africa
CCARDESA	Center for Coordination of Agricultural Research and Development for Southern Africa
CIAT	International Center for Tropical Agriculture
DA	District Administrators
DAO	District Agricultural Officers
DAR	Department of Agricultural Research
DEO	District Extension Officer
DFS	Director of Field Services
ESMF	Environment and Social Management Framework
FFS	Farmer Field School
GRM	Grievance Redress Mechanism
ICKM	Information, Communication & Knowledge Management
LAC	Lesotho Agricultural College
LASAP	Lesotho Adaptation of Small-Scale Agricultural Production project
M&E	Monitoring and Evaluation
NSDP	National Strategic Development Plan
NUL	National University of Lesotho
PI	Principal Investigator
R&D	Research and Development
RBM	Result-Based Management
RCoL	Regional Center of Leadership
RFAs	Research Field Attendants
RSDA	Rural Self-help Development Association
RTOs	Research Technical Officers
SMARDT	Southern Mountains Association for Rural Development
MAFS	Ministry of Agriculture and Food Security
NGOs	Non-Governmental Organizations
NARS	National Agricultural Research System

INTRODUCTION

Country Overview

Lesotho is one of the Sub-Saharan African countries entirely landlocked by South Africa. It is the smallest country in Southern Africa, with an approximate area of 30,355 km^2. About 12% of land is arable, which makes crop farming the main source of income for the rural poor. The country is divided into four agro-ecological regions; the lowlands, the highlands, the Senqu River Valley, and the foothills. Lesotho's population is estimated at 2,007,201 according to the 2016 population and housing census, in which the male population accounted for 48.9% of the Lesotho population while the female population constituted 51.1% of the entire population [1].

The country's economic performance is reliant on agriculture, livestock, manufacturing, and mining. Agriculture contributes approximately 7.4% to GDP, 34.5% to industry, and 58.2% to services [2]. Significant natural resources include diamonds and water. Agriculture is still the country's most important generator of employment. 70% of the population living in rural areas farming provides roughly 45% of employment [1] [4].

Cereal production: maize, sorghum, and beans are primarily subsistence-based. The most recent data available (for 2006–2008) indicates that vegetable production accounts for about 13.5% of land planted to crops, with fruit adding a further 1.5% – all essentially land-intensive, rain-fed crops for both own-consumption and local sale. Lesotho has a comparative advantage of high-altitude conditions, which are conducive for both high productivity of horticultural crops and early ripening seasons [1] [3].

Lesotho National Strategic Development Plan II (2018/19-2022/23) sets the strategic objectives aimed at developing plant materials of high economic value that will exhibit desirable traits (in terms of yield, pest and disease resistance, drought tolerance and market value). The government, under the Ministry of Agriculture and Food Security (MAFS) through the Department of Agricultural Research (DAR) is strengthening national agriculture research to enhance technology transfer through institutional linkages locally and regionally under the Agricultural Productivity Programme for Southern Africa (APPSA).

APPSA is a six-year World Bank funded initiative currently under implementation in Angola and Lesotho, with regional coordination by Center for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA). Lesotho is establishing a Regional Centre of Leadership on Horticulture and Horticulture-based farming systems whereas Angola is focusing on Cassava and Cassava-based farming systems. APPSA Lesotho collaborates with other National Agricultural Research Systems (NARS) these includes National University of Lesotho (NUL), Lesotho Agricultural College (LAC), MAFS sister departments, and other relevant ministries and NGOs as local partners.

APPSA seeks to [i)] promote regional collaboration in agricultural research, technology dissemination, and training; [ii)] establish Regional Centers of Leadership (RCoLs); and [iii)] facilitate increased sharing of agricultural information, knowledge, and technology among participating countries. The government of Lesotho, through its RCoL, has elected horticulture-based farming systems as a commodity of excellence.

Promotion of RCoL and APPSA Project Visibility

APPSA-LESOTHO UNDERTAKES SENSITIZATION CAMPAIGNS

Figure 1: Sensitization facilitators and Maseru extension staff

To raise awareness about the APPSA programme in Lesotho, the project team embarked on a nationwide sensitization workshop across the 10 administrative districts. Due to strict covid-19 mobility regulations at the time, the workshops faced a challenge of low attendance. As the project primary beneficiaries are farmers and the farmers ecosystem spans authorities of key decision makers - the APPSA-Lesotho leadership had to touch base with all key stakeholders. At this juncture, the project was introduced at a high level to negotiate working arrangements and solicit stakeholder buy-in.

The target group for the workshop comprised of: Ministry of Agriculture and Food Security; Agricultural extension staff; Farmers; Input Traders; Farmer organizations and other ministries. Among other ministerial participants present were the Ministry of Small Business, Cooperatives and Marketing, Ministry of Forestry, Range and Soil Conservation and other Non-Governmental Organizations.

Stakeholders and Farmers Sensitized						
District	Stakeholders by gender		Total Stakeholders	Farmer by gender		Total Farmers
	Male	Female		Male	Female	
Berea	15	16	**31**	23	15	**38**
Leribe	18	16	**34**	17	11	**28**
Butha Buthe	15	23	**38**	21	24	**45**
Quthing	11	18	**29**	15	6	**21**
Qacha's Nek	14	8	**22**	21	8	**29**
Thaba Tseka	11	9	**20**	31	17	**48**
Mafeteng	17	15	**32**	31	16	**47**
Mokhotlong	15	16	**31**	23	15	**38**
Mohale's Hoek	15	16	**31**	23	15	**38**
Maseru	19	17	**36**	26	21	**47**
Total	**150**	**154**	**304**	**231**	**148**	**379**

Table 1: Stakeholders and farmers sensitized countrywide

The workshops were graced by the presences of the District Administrators (DA) and District Agricultural Officers (DAO's). The DA is the highest Government authority in the districts while DAOs are operational engines of the agricultural extension services. These officers played a pivotal role in the opening and closing remarks for the duration of exercise.

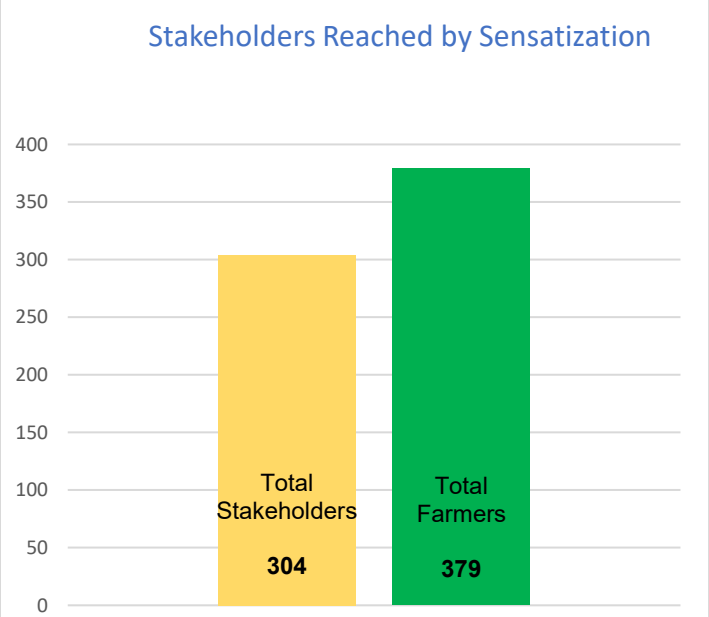

Figure 2: Stakeholders reached by sensitization

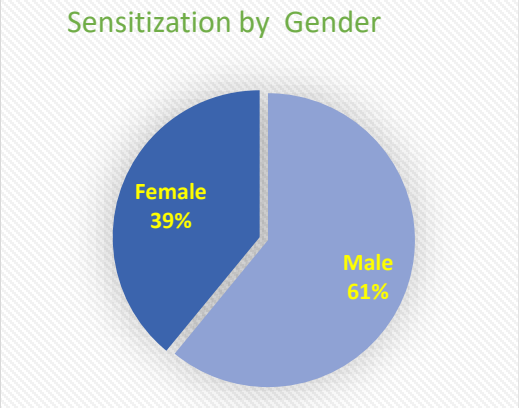

Figure 3: Sensitization by gender

Figure 4: Sensitization of farmers in Quthing (Left) Botha-Bothe (Right)

Participants during the APPSA Sensitization Workshops

While the number of participants targeted was 1000, only 683 responded to the invitations which marks an attendance rate of 68%. A fraction of absenteeism identified resulted from stringent covid-19 mobility restrictions and unarranged transportation logistics from very remote sites.

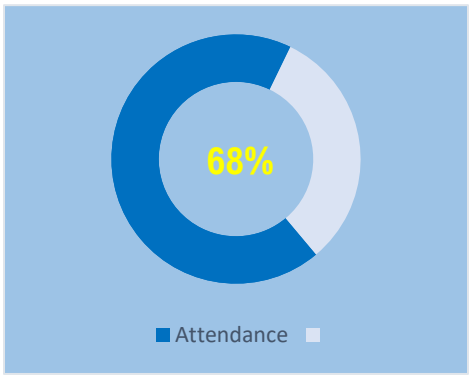

Figure 5: Attendance rate countrywide

Figure 6: Media coverage in Botha-Bothe

As the main goal was the promotion of RCoL and APPSA project visibility, a fraternity of media houses honored the invitation. As a result, coverage was provided on television news, radio programs and press releases.

Promotional materials used during sensitization campaigns

Figure 7: A rollup banner

Figure 7 shows strategic components of the APPSA-Lesotho. These are key objectives, APPSA approach to research and project design according to four components.

Figure 8 highlights the project sponsor as the World Bank; The Government of Lesotho (GoL) as grant recipient; project implementer being the Department of Agricultural Research (DAR) and regional coordinating body known as the Center for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA).

Figure 8: A teardrop banner

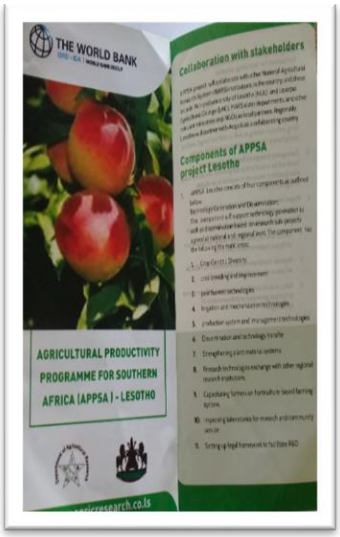

Figure 9: A brochure

Figure 9 has detailed information about APPSA, World Bank as the project sponsor, CCARDESA as the coordinating body, and basic information on improved agricultural technologies. Brochure offers more than project visibility thus increased awareness on improved technologies.

APPSA-LESOTHO ENGAGES DISTRICT AGRICULTURAL OFFICERS

Figure 10: Information sharing with district agricultural officers (DAOs and DEOs)

The District Agricultural Officers (DAOs) are set to oversee all agricultural research activities carried out within their localities. Another major role of the DAOs to the project is the farmer identification and selection. It should be noted that APPSA-Lesotho seeks to engage farmers throughout the research lifecycle. The approach is thoughtful to motivate farmer adoption of improved technologies. Researchers often referred to as scientists, are more into the experimentation while the DAOs are strategically placed to work with farmers for all extension work. Hence the relationship between farmer and extension workers is far more likely to result in cooperation, encouraging learning and sharing of experiences and is sustainable.

One day meeting provided a strategic direction and flattened expectations to forge strategic partnerships with agricultural extension offices. For synergies to be forged and harmonized, there is a need to clearly articulate the roles and responsibilities. Moreover, the Department of Field Services (DFS) was present.

Figure 12: Phase 2; Information sharing in Thaba-Bosiu

Figure 11: Phase 1; Information sharing in Thaba-Bosiu

DFS is a strategic department of the MAFS focusing primarily on extension services at community. Since DFS interfaces directly with farmers, APPSA could benefit from the existing knowledge to drive technology dissemination.

During the deliberations, the project information was shared in a facilitator led session. The information provided covered the following aspects:

- Project overview
- Progress to date
- challenges
- lessons learned.

Over and above the slide presentations, there were more engaging discussions on the project implementation approach to the context of Lesotho:

- Implementation strategy
- Communication management and
- Arrangements of project staff at district level.

Following back and forth dialogue of questions and answers, decision points were reached. The project should develop progress reports and share with the district authorities on a quarterly basis. For every active sub-project at district level, a relevant district officer should be notified of all works all the time. All farmers to which the project seeks to engage will be sourced by the district support structures.

The Director of Field Services Mr. Lereko Masopha indicated that meetings of this nature are of paramount importance as the Research-Extension-Farmer linkages are strengthened. He asserted that the Ministry of Agriculture, Marketing and Food Security intends to break the silo approach in undertaking agricultural activities. He further pleaded with the researchers and extension personnel to work hard for the success of APPSA and the larger benefit of the farming community.

The DAOs and DEOs presented the structures and confines of the operations at district level. The presentations outlined gaps for immediate attention, proposed implementation strategy, expectations, and suggestions. The DAOs and DEOs were pleased with the eventuality of the meeting while also acknowledging it was long overdue. They pledged their support to APPSA activities at district level. The Director of Agricultural Research Dr. Lefulesele Lebesa expressed her appreciation, highlighting the active participation of the DAOs and DEOs in the meeting. The Director emphasized that the APPSA-Lesotho project is not a standalone but rather aims to augment the goals of the Ministry through research and development. A total number of ten (10) District Agricultural Officers and nine (9) District Extension Officers attended the APPSA information sharing meeting.

APPSA-LESOTHO ENGAGES A DESIGN AND SUPERVISION FIRM TO IMPROVE AGRICULTURAL RESEARCH INFRASTRUCTURE

Figure 13: Engagement of design and supervision firm in Siloe Research Station - Mohale's Hoek

APPSA-Lesotho has secured services of a design and supervision firm. The contract was entered into by and between the Ministry of Agriculture and Food Security and TM2 Consultancy, a Lesotho based consultancy firm. The firm has started preliminary assessment to document the status on infrastructure. The scope spanned three Research Stations (*Mokhotlong (mountains), Mahobong (northern lowlands), Siloe (southern lowlands) Nyakosoba and Machache(foothills)*); access road to the main research station in Maseru; as well as the design of the main office buildings.

The consultancy firm (TM2 Consultancy) was introduced to the heads of departments and heads of districts. Further introductions cascaded before village chiefs, counselors, and farmer representatives. The project team comprised of Project Manager, RCoL-Coordinator, Procurement Manager, Commodity Leader-Infrastructure, Environment and Social Safeguards Specialist and Technology Dissemination Officer.

Figure 14: Handover of Siloe Research Station to Design and Supervision firm

APPSA- Lesotho Project Manager - Mr Mabusetsa Makau pleaded with the districts and area authorities to afford the firm all the necessary support. He emphasized that research and infrastructural developments on the research stations are meant to serve the farming communities. On the other hand, the districts and area authorities expressed their satisfaction regarding the developments and reassured the support and security in undertakings.

Increasing knowledge sharing, collaboration, and networking in the region

CCARDESA CONDUCTS TECHNICAL BACKSTOPPING FOR APPSA-LESOTHO RESEARCH ACTIVITIES

Figure 15: CCARDESA technically backstops APPSA-Lesotho

Delegates from CCARDESA visited Lesotho from the 13th to 17th September 2021 to provide technical backstopping. Dr Majola Mabuza from CCARDESA, APPSA Regional Coordinator, said the visit to Lesotho is meant to identify the extend of implementation progress in the Mountain Kingdom for the 2020-2021 season. On the flip side, the delegate was keen to familiarize with plans for the subsequent season 2021/22 to ascertain synergies of collaboration with Angola counterparts.

Dr Lefulesele Lebesa, the Director DAR, re-emphasized the importance of agriculture as the fountain and backbone of the economy of most African countries. She indicated however, that agriculture faces a myriad of challenges. The Director recognized the Ministry of Agriculture, Marketing and Food Security pointing out a solemn need to use evidence-based strategies to expedite production in farming communities.

The mission kicked-off the first three (3) days with a training of scientists on monitoring and evaluation (M&E) concepts. The capacity building through a classroom facilitated training intended to align implementation with work plans benefiting from a result-based management (RBM) approach. The training was led by CCARDESA Monitoring and Evaluation (M&E) Officer in conjunction with APPSA-Lesotho M&E specialist.

Figure 16: Attendants during technical backstopping led by CCARDESA

Post the training, the delegates from CCARDESA took a tour to the main station of the Department of Agricultural Research. The tour further engaged partners in the APPSA project including Lesotho Agricultural College (LAC) as well as the National University of Lesotho (NUL). Physical onsite visits were sought as appropriate assessments tools.

Figure 17: CCARDESA team inspect APPSA-Lesotho research activities

Nyakosoba and Machache research sub-stations were among those sites visited. At Nyakosoba, fruit trees are grown under APPSA sub-project entitled "*Collection, characterization and conservation of peach trees and indigenous leafy vegetables germplasm in Lesotho*." At the time of visit, there was infrastructural earth work on fencing.

Figure 18: Mokhotlong (Left) Nyakosoba (Right) Research Stations Fencing

On the final day, a scientific conference came into picture. At this point, all the research work and findings by the scientists from DAR, LAC and NUL were presented before CCARDESA delegates. Recommendations were made to strengthen the research and development activities.

In closing, the Principal Secretary of the Ministry of Agriculture, Marketing and Food Security Mr Nchakha Makara - applauding CCARDESA for an astounding support to APPSA-Lesotho. The PS stressed on R&D as the anchor of production within farming communities. "*It is fulfilling to realize the shift in attention towards agricultural research*" – PS MAFS. He urged the scientists and everyone participating in agricultural research to pull up their sleeves and work tirelessly to increase food security.

APPSA-LESOTHO ESTABLISHES FARMER FIELD SCHOOLS (FFS) IN THREE DISTRICTS

Figure 19: Establishment of Farmer Field School at Nkoeng Ha-Makakamela in Leribe district

APPSA-Lesotho adopts Farmer field school (FFS) participatory approach to extension. Exploring different avenues provides more opportunities to farmers to decide on more appealing methods of production. FFS is described as a platform of "*learning by doing*" and "*School without walls*" for improving knowledge through sharing and sharpening decision making. The nature of FFS stimulates local innovation and brings hope to sustainable investment in agriculture. The approach has four major principles:

- Grow a healthy crop.
- Observe fields regularly.
- Conserve natural enemies of crop pests.
- Farmers understand ecology and become experts in their own field.

APPSA established FFS in the three districts at Leribe (Nkoeng and Ha-Seetsa sub-centers) on the 11th to 14th October 2021; Maseru (Ha- Matela sub-center) and Mohale's Hoek (Mpharane resource center) on the 1st to 4th November 2021. FFS are an initiative established under the sub-project entitled "*Drivers to Technology Adoption and Profitability-Dissemination of improved technologies maize and beans in Lesotho and Angola.*".s Miss Mokhants'o Morahanye from the Department of Agricultural Research in Lesotho is a Principal Investigator (PI) while Dr Kiakanua Manuvanga from Angola is a core PI in this sub-project. The objectives of the afore-mentioned sub-project include dissemination of improved maize and bean seed varieties to increase the uptake and adoption. The seed technologies in question are Maize (ZM 521& ZM 523) and Beans (NUA 45 & Pinto Nodak).

Figure 20: Farmer Field School members engaging in field work

Farmers planted the four varieties during field practical host farm. The farmers participants in FFS are studying the varieties during the 2021/22 planting season. Thirty (30) farmers were identified from each area and the recruitment it is the responsibility of extension officers. A whooping number of one hundred and twenty (120) farmers from the three (3) districts are participating in the farmer field schools.

APPSA-LESOTHO FACILITATES KNOWLEDGE AND EXPERIENCE EXCHANGE BETWEEN FARMER FIELD SCHOOLS IN THE LERIBE DISTRICT

Figure 21: Exchange visits between Nkoeng and Ha-Seetsa Farmer Field School members

FFS exchange visits provide an opportunity for learning about technologies and best practices. APPSA-Lesotho facilitated an exchange visit between farmer field schools (FFS) from Ha-Seetsa (visitors) under Mahobong resource centre, who were hosted by the FFS from Nkoeng under Tale resource centre. FFS is an approach used for technology dissemination, knowledge exchange and learning by doing. The knowledge exchange of FFS is still concentrated on two crop commodities Maize and Beans. On maize the varieties are ZM521 & 523 while Bean varieties are NUA45 & Pinto Nodak.

Figure 22: Exhibition of technologies promoted by APPSA-Lesotho during FFS exchange visits

A major highlight of the exchange visit found farmer having to learn about Agroecological System Analysis (AESA). AESA is a comprehensive farm monitoring and evaluation method for crops. It involves growth assessment, observing the interaction between crops and other biotic/abiotic factors coexisting in the field, data collection and analysis of field observations. AESA brings a dimension of informed decision making by farmers. The farmers from the two FFS were able to share experiences guided by the AESA approach which they found useful.

Figure 23 – FFS members showcasing their Farm Produce

Later that day, an exhibition of cereals, fruits, and vegetable produce from Ha-Seetsa and Nkoeng FFS decorated the day. Other hand-made products as thatched brooms, clothes and necklaces from farmers were showcased as well.

Mr Tilia Letsoela one of the FFS members, could not hold back his joy for being part in FFS. He echoed the importance of FFS within the farming community in orchestrating knowledge sharing through a community of practice. Mr Letsoela spoke on improved maize citing a staggering growth performance that is resilient to heavy rainfall - "*Despite the excessively unfavorable environmental conditions experienced in the last cropping season, the improved maize varieties continued to flourish.*"

The Horticulture RCoL Coordinator, Ms Maleabua Lephole expressed her appreciation to the commitment shown by FFS members throughout the planting season. She stated that through the FFS experiential learning members are expected to participate vigorously in the uplifting of Lesotho's food security. Ms Lephole thanked extension service in the Leribe district for dedication and committed support to the farmers and APPSA initiatives.

Mrs Mabolae Lephoto on behalf of District Agricultural Officer commended APPSA for establishing FFS in Leribe. She pleaded with members of FFS to unite strongly even after APPSA project phase out. Mrs Lephoto urged FFS members to become additional hands of extension service in respective localities to lead fellow farmers.

APPSA-LESOTHO HOLDS A FELD FIELD DAY IN MOHALES' HOEK DISTRICT

Figure 24: Field Day on maize and bean varieties promoted by APPSA-Lesotho at Mpharane, Mohale's Hoek

Two field days were held on the 17th March 2021 in Mohale's Hoek district at Mpharane and Mohlakeng situated in Makhaleng resource center. The first demonstration was in Mpharane and in the afternoon the proceedings shifted to Mohlakeng for experimental trials. The field day engaged the farming community and scientists on an experimental trial on soybeans as well as to showcase new varieties of maize while also disseminating information regarding these varieties.

Figure 25 - Soybeans at Mohale's Hoek

The demonstration in Mpharane is conducted under the sub-project *Drivers to Technology Adoption and Profitability-Dissemination of improved technologies maize and beans in Lesotho and Angola***.** The farmer Mr Nkopane Seboka together with the extension service received full engagement. The farmer indicated that the two bean varieties performed well in terms of yield and that obliges him to keep the '*magic beans*' - *Lebete* as seed for the next planting season. He pledged to share some seed with farmers in his locality and nearby villages.

Most farmers are familiar with Pinto Nodak and are likely to have planted it before. On the contrary, NUA45 is rare among a wide population of farmers. An interest fact is that most farmers show more interest on NUA45 based upon many traits in particular nutrition value, taste and tolerance to adverse weather as was portrait by researchers and extension officers.

Figure 27 - Lebete

Figure 26 - Pinto Nodak

NUA 45 is recommended for children under 5 years. It contains higher concentration of iron and zinc. An exhibition of NUA45 products were displayed including savory bean biscuits, roasted bean flour and bean soup. Despite the impressive outlook of improved maize and bean varieties, farmers were adamant that

challenges exist. High incidence of aphid infestation and excessive rainfall during the season are some of the challenges but benefits outweigh the drawbacks.

The second activity is an experimental trial based in Mohlakeng being implemented by the PI Professor Motlatsi Morojele a lecturer in the National University of Lesotho together with a Co-PI from Angola Mrs Mónica Mbui. The professor is undertaking a sub-project called *Characterization of common bean (Phaseolus vulgaris L.) genotypes using morphological and molecular markers***.** For this experimental trial, a total of two hundred and thirty (230) bean accessions were sought from a gene bank in Malawi. The accessions will be subjected to the new environment in Lesotho to identify and pick the most performing lines. This year (2021), the first screening will be conducted centered around high yielding varieties, resistance to diseases and pests and tolerance to unfavorable climatic conditions.

Figure 28: Field Day on Common bean varieties in Mohlakeng - Mohale's Hoek

Alongside the common bean trial, the PI is also undertaking research on soybeans, a study being funded by Research and Conference Committee from NUL. As a means of introducing more leguminous varieties to the farming community, twenty-eight (28) varieties of soybean from Potchefstroom in South Africa are also being screened for yield, adaptability, morphology, diseases resistance and nutrient content.

Covid-19 protocols controlling overcrowding in public gatherings, restricted the number of invitations being made to farmers and other stakeholders. Those present were delegates from the Ministry of Agriculture, Marketing and Food Security management; Mohales' Hoek district administrator, District Agricultural Officer, Director of Agricultural Research, APPSA Project Director, representatives from non-governmental organizations; researchers from the National University of Lesotho, Lesotho Agricultural College, Department of Agricultural Researchers, farmers, and seed producers. Social distancing and tucking of masks were observed as well.

Figure 29: Field Day on soyabean varieties in Mohlakeng – Mohale's Hoek

150 invitations were issued for this event. 141 participants attended. A fair distribution of gender representation was reached with sixty-two (62) females and 79 males.

Figure 30: Field Day on maize varieties (ZM521 and ZM523) in Mpharane – Mohale's Hoek

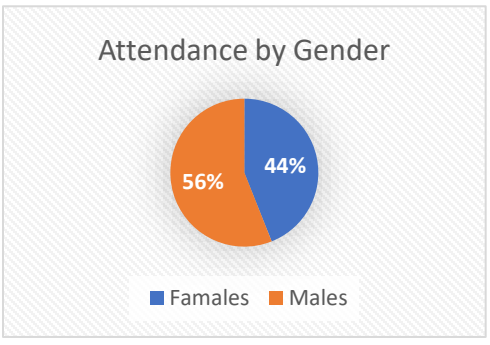

Figure 32: Field Day attendance by gender

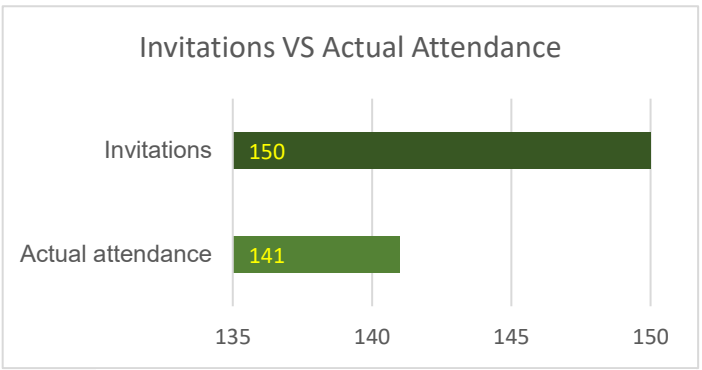

Figure 31: Expected and actual attendance

APPSA-LESOTHO HOLDS A FIELD DAY ON VARIOUS CROPS IN MOHALE'S HOEK DISTRICT

Figure 33: Field Day on various crops in Siloe Research Station – Mohale's Hoek

A Field Day is an educational event held on-farm or on research station. It is organized and hosted by the scientists, oftentimes in collaboration with agricultural extension agents. The event usually includes demonstrations of specific management practices, research methods, and performance of varieties. The delivery of the contents of the day draw attention to new practices or crop varieties and exciting developments in agriculture. On the 23rd March 2022, the theme dwelled on four commodities: beans, sorghum, peach trees and potatoes.

Figure 34 - Demonstration on Sorghum Landraces

Sorghum demonstrations are led by Dr Mpho Liphoto under a sub-project "*Strengthening the sorghum seed delivery systems in Lesotho and Angola*". Sorghum landraces were collected country wide and are being analyzed for desirable traits. Some of the investigated traits are tolerance to drought or wet conditions, resistance to pests and diseases.

Figure 35: Bean demonstration

Demonstration on beans were directed by Dr Puleng Letuma for the sub-project "*Performance of bean genotype under multi environments in Lesotho and Angola*". The demonstration entailed thirty-six (36) bean

varieties accessed from CIAT. The objective is to analyze performance of bean varieties under varied environmental conditions to update the seed catalogue and guide farmer seed selection.
Another bean demonstration was facilitated by Dr Botle Mapeshoane under the sub-project "*Screening bean and cowpea varieties and advanced breeding lines for productivity in low soil fertility and drought prone areas in Angola and Lesotho*". For this one, twenty (20) bean varieties that are known and practiced country wide were collected from farmers and planted. Performance of these bean varieties will be assessed under soils of low fertility in phosphorus and nitrogen.

Participants visited the peach tree nursery during the field day. The nursery is erected under the sub-project named "*Collection, characterization and conservation of Cassava, Peach trees and indigenous leafy vegetables germplasm in Angola and Lesotho*" led by Mrs Matsikoane Sefotho. The conservation of peach fruit trees commenced with collection of peach stones country wide culminating with the establishment of nurseries. The geographic representation of collection spans Lowlands, foothills, and mountains. Ultimately, fruit trees will be grown in fields of orchards.

Figure 36 - Demonstration on Panamera Potatoes

Participants were shown a potato demonstration led by Mr Refuoehape Chabalala established in Silioe research station. Panamera potatoes are high yielding, good quality and resists pests and diseases. The demonstration plots are sub-divided in three (3) from which yield would be decided on two parameters: planting rate and time of earthing-up. The study is on its first season and results will be concluded on the third season.

The field day was attended by the Director of Field Services (DFS), Director Department of Research, Director Planning and Policy Analysis, District Administrator, District Agricultural office Village chief, NGOs such as RSDA and SMARDT, officers from different departments of the Ministry of Agriculture and Food Security, extension officers and farmers.

APPSA-LESOTHO CONDUCTS A WORKSHOP ON ENVIRONMENT AND SOCIAL SAFEGUARDS MANAGEMENT FRAMEWORK (ESMF) AND GRIEVANCE REDRESS MECHANISMS (GRM) FOR EXTENSION OFFICERS IN THE MOKHOTLONG DISTRICT

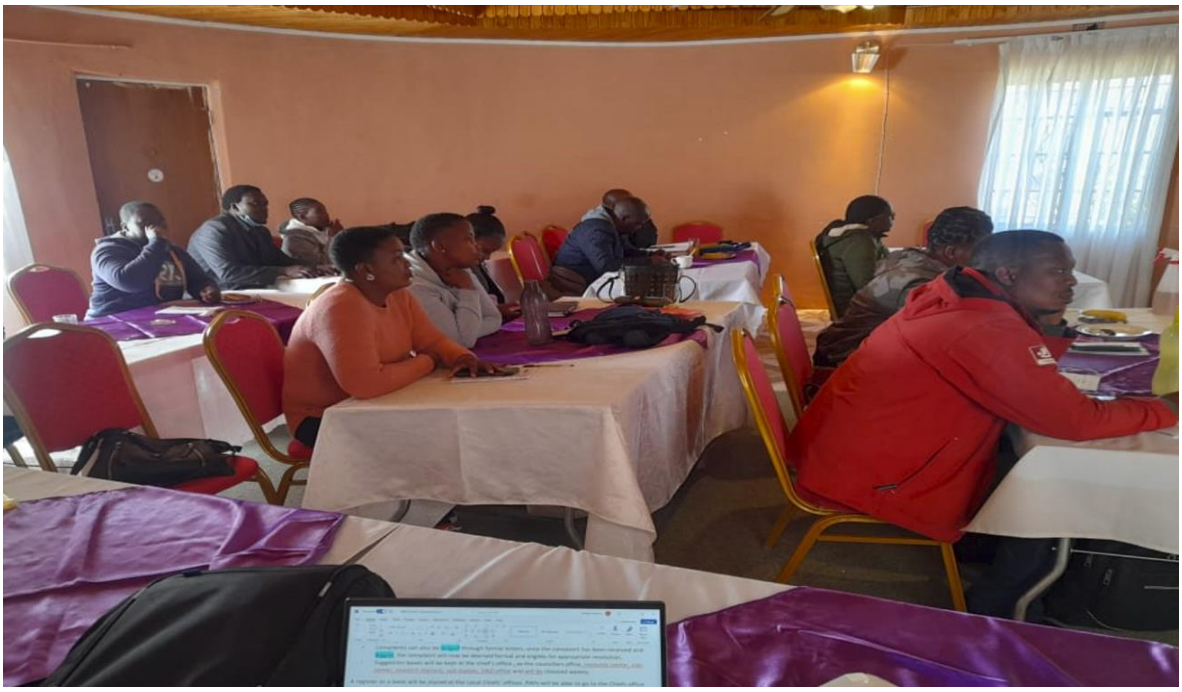

Figure 37: ESMF and GRM training for Extension Officers in Mokhotlong District

Twenty-two (22) extension officers from Thabang & Libibing Resource Centers in the Mokhotlong district, participated in a two-day workshop on ESMF & GRM from the 4th to 5th May 2022. Extension officers were trained on administration of grievances anticipated during the implementation of APPSA activities. Focus narrowed on research and construction activities. Extension officers need to be vigilant in managing the satisfaction of farmers on the project.

Component-2 of APPSA-Lesotho involves upgrading of research infrastructure, which includes construction and rehabilitation of buildings in Maseru, Mohale's Hoek, Leribe and Mokhotlong Agricultural Research Stations. APPSA aligns with the World Bank safeguards policies that aim to avoid, mitigate, and minimize adverse environmental and social impacts. The project considers the two main regulatory and legal frameworks: (1) Environmental Act 2008 and (2) World Bank Environmental & Social Safeguard Policies. The latter augments environmental Act 2008 for any direction not spelled out to detail.

During the workshop, extension officers were introduced to a grievance redress mechanism (GRM) system. Anyone affected by the project directly or indirectly is open to voice their concerns through appropriate channel. All documented grievances should be grouped, prioritized, communicated, and tracked down to resolution. The significance of the environmental and social assessment in the project is to inform sub-project designs on controlled use of chemicals and good conduct to protect the environment and society - disadvantaged and vulnerable individuals and groups.

The GRM ensures that the project is responsive to the needs of beneficiaries, addresses and resolves their grievances. It serves as a conduit for soliciting inquiries, inviting suggestions, and increasing community participation by collecting information that can be used to improve operational performance and enhance the project's legitimacy among stakeholders.

District Extension Officer (DEO) based in Mokhotlong, Mr Polao Tlali, underlined the importance of the workshop to the overall extension work in the district. He vowed to use the knowledge gained in supporting the activities of APPSA. Proper management of grievances improves stakeholder satisfaction, participation, and ownership.

APPSA-LESOTHO CONDUCTS A WORKSHOP ON ENVIRONMENT AND SOCIAL SAFEGUARDS MANAGEMENT FRAMEWORK (ESMF) AND GRIEVANCE REDRESS MECHANISMS (GRM)

Figure 38: ESMF and GRM training for; DAR, PIU and RTC in Maseru District

Management of the Department of Agricultural Research, APPSA Project Implementing Unit and APPSA Research Technical Committee participated on ESMF and GRM workshop held in Maseru district on the 11th May 2022. These are the overseers of the APPSA Lesotho. The workshop was led by Mrs Moliehi Lephoto - Environment & Social Safeguards specialist, with support of Information, Communication & Knowledge Management (ICKM) team. Knowledge of ESMF & GRM is imperative to decision making.

In his opening remarks, the APPSA Project Manager Mr Mabusetsa Makau transcended a general overview of APPSA. He further alluded to safeguards practices during execution. Workshops on ESMF & GRM are on-going. The targeted audience is extension officers, local chiefs, counselors, and lead farmers in project affected areas (Mountains, Foothills and Lowlands).

Figure 39: Presentation on ESMF and GRM training in Maseru District

In closing, the Director Dr Lefulesele expressed her gratitude to the participants for availing themselves and active participation. The Director of research acknowledged that the workshop was undoubtedly insightful and "*A holistic safety approach is fundamental to the overall research undertakings*". She pleaded with the attendants to observe appropriate safety measures to create a conducive environment for research and development.

Increasing awareness of available technologies in the region by key stakeholders

AGRICULTURE PRODUCTIVITY PROGRAMME FOR SOUTHERN AFRICA (APPSA-LESOTHO) HELD WORKSHOP FOR RESEARCH TECHNICAL OFFICERS (RTOs) AND REASERCH FIELD ATTENDANTS (RFAs)

Figure 40: Presentation on trial management

The purpose of this three-day workshop was to capacitate RTOs and RFAs on trial management. RTOs and RFAs are expected to step down and train scientists. The first day was dedicated for RTOs. Day 2 was dedicated for RFAs in a classroom facilitator led trainings. On the last day, both groups were engaged in a practical field work. Workshop was held on February 21st - 23rd 2022.

Figure 41: Actual demonstration on trial layout

The RCoL coordinator Ms Monica Lephole, indicated that the workshop was long overdue. She recognized the critical role played by RTOs and RFAs in research activities predominantly on management of trials and demonstrations. She appealed with the participants to apply themselves well in carry out trials to circumvent faulty research findings.

The participants were refreshed on public service act and code of good conduct at workplace by the human resource officer. Other thematic areas covered were trial design and layout; soil sampling and fertilizer description; basic crop husbandry; basic plant health and protection as well as field safety measures. A total of 33 participants were trained, that is eight (8) RTOs and twenty-five (25) RFAs.

Mr Teboho Lekhema shared sentiments of appreciation to APPSA-Lesotho to considering training RTOs and RFAs. He highlighted the demand for such trainings for newly recruited officers and refresher trainings for those long in the service. The training was insightful hence the participants can execute their duties with minimal hindrance. He pleaded with the participant to double their efforts in ensuring successful research undertakings.

APPSA-LESOTHO UNDERTAKES SOIL PROFILE AND CHARACTERIZATION IN ALL STATIONS OF THE DEPARTMENT OF AGRICULTURAL RESEARCH

Figure 42: Soil profile and characterization in Siloe Research Station – Mohale's Hoek

Soil profile plays an important role in the soil nutrient management and fertility. The natural occurrence of weather and decomposition of organic matter account for many physical, biological, and chemical properties which exert great influence on the distribution and development of vegetation and life. It is in line with these principles that the APPSA-Lesotho undertook soil profile and characterization in eleven (11) research stations. The activity was led by the horticulture technicians together with experts from soils and farm management. The extracted soil samples will be sent for laboratory tests. The test results will guide land treatment and choice of crops for subsequent sub-projects. It is a prerequisite to ascertain soil status on the sites on which research trials and demonstrations would be conducted.

The study of the soil profile including history and status is important for crop husbandry. So far, it has revealed the surface and the subsurface characteristics and qualities, namely depth, texture, structure, drainage conditions and soil-moisture relationships, which directly affect plant growth in the selected areas.

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