

Agricultural Productivity Program for Southern Africa (APPSA)

Research and Development (R&D) Efforts under Legumes

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On Behalf of Legumes Commodity Teams
(Malawi, Mozambique and Zambia)



**END OF PROJECT
CONFERENCE**

27-29 November 2019, Johannesburg, South Africa

CCARDESA

Centre for Coordination of Agricultural Research and Development for Southern Africa



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Presentation Outline

- Background
 - RD Gaps Addressed
 - Key Research Areas
 - Objectives
- Focus crops
- Projects implemented
- Key Outputs (Achievements)
 - Technologies Generated
 - Technologies Released
 - Technologies disseminated
- Key Lessons
- Way forward
- Acknowledgements



Background

- The Nitrogen fixing properties of Legumes can improve soil fertility which improves and extends the productivity of farm lands
- Legumes are sources of proteins and dietary fibre
- Good rotations crops with cereals
- Legumes have low fat content, zero cholesterol
- They can be good sources of income

Background

- The low yields are attributed to a number of factors, some of which include low use of inputs, use of unimproved varieties, recycling of seed, pests and diseases
- Drought and heat is becoming a problem with SHF and hence need to come up with genotypes/varieties that are tolerant to drought

Key Research Gaps

- Low productivity
 - Pests and Diseases
 - Low access to improved seeds
 - Poor Production methods
- Climate resilience
 - Droughts
 - Heat
- Nutrition
 - High Iron and Zinc



Key Research Gaps

- Managing aflatoxin problems in Groundnuts
- Reducing post harvest losses in grain legumes
- Improving access to new varieties through development of sustainable seed system
- Germplasm collection and conservation

Key Objectives

- To generate Legume based technologies for increased productivity and production for both small scale and commercial farmers in Malawi, Mozambique and Zambia
- To develop appropriate production packages for the farming community and stakeholders
- To enhance utilization of legumes at household level



Focus Crops

- Groundnuts
- Beans
- Soybeans
- Cowpeas
- Pigeon peas
- Bambara nuts



Projects Implemented

S/N	Crop	County			Total
		Mw	Mz	ZM	
1	Groundnuts	1	3	4	8
2	Beans	5	4	5	14
3	Soybeans	2	2	2	6
4	Cowpeas	3	4	5	12
5	Pigeon pea	2	2	1	5
6	Multi-legumes	7	7	7	21
	Total	20	22	24	66

Generated Technologies

- A number of technologies were generated
 - Varieties
 - Production packages
 - Utilization packages



Released Technologies (Varieties)

S/N	Crop	County			Total
		Mw	Mz	ZM	
1	Groundnuts	-	3	7	10
2	Beans	6	-	9	15
3	Soybeans	-	-	-	0
4	Cowpeas	-	-	3	3
5	Pigeon pea	-	-	3	3
	Total	6	3	22	31

Technologies under Pre-release (Vars)

S/N	Crop	County			Total
		Mw	Mz	ZM	
1	Groundnuts	0	0	1	1
2	Beans	5	4	8	17
3	Soybeans	2	5	0	7
4	Cowpeas	0	4	0	4
5	Pigeon pea	1	2	1	4
6	Bambarra	0	3	0	3
	Total	8	18	10	36

Germplasm Collection and Conservation

S/N	Crop	County			Total
		MW	MZ	ZM	
1	Groundnuts	-	24	-	24
2	Cowpeas	46	55	150	251
3	Pigeon pea	87	-	33	120
4	Bambarra	24	36	154	214
	Total	157	115	337	609

Technologies Disseminated

- Use of Inoculum in Soybeans
- Row Planting in Beans and cowpea
- Lime use in Groundnuts to reduce Aflatoxin contamination
- Side Raised Windrow in Drying Groundnuts
- Dwarf Raised Windrow in Drying Groundnuts
- Raised Ventilated Platform in Drying Groundnuts

Technologies Disseminated

- Double Row ridge planting in Groundnuts
- Recommendations on management of aflatoxin in groundnuts
- 90+ Legume technologies disseminated to SHF
- Formulated cowpea based weaning food

Key Lessons

- Strong involvement of Agricultural extension agencies as partners in implementation was found to be critical to enabled researchers to get feedback
- Hands-on training of farmers increased their interest and knowledge
- Farmers' trainings were more productive when one topic was handled at a time than several topics

Key Lessons

- Partnerships/networking with CGIAR centres facilitate germplasm acquisition and improved the scientific quality of research.
- A few scientists have had good working experience and as a result they have complemented well in developing technologies within a short space of time

Key Lessons

- Collaboration among countries and working in multidisciplinary teams is important in achieving the Goals and Objectives of a programme - enhanced learning and diversity in the execution of sub projects hence leading to better results
 - Complementarity

Technology uptake by Private

- Mw: Multi Seeds Company, Mgomera Seeds, Afriseeds, Globle seeds, Pyxus, Rab Processors, Agrocom, ETG, Transglobal,
- Mz: Orwera, Phoenix Seed Company, Dengo Comercial, Klein Karoo Seed Marketing
- Zm: Afriseeds, Good Nature Seeds, Future Seeds, Kamano Seeds, Freshpikit, Standa, Yanza Amansa, Mt Meru Industries, Comaco,

Way Forward

- Continue Dissemination of Technologies developed and make them available to farmers
- Link farmers to markets so as to enhance improved livelihoods among small holder farmers
- Continue work on resilience to heat, drought and low soil fertility in wake of climate change

Way forward

- Continue work on resilience to biotic and abiotic stresses
- Strengthen Pre-basic and Basic seed production so as to address issues of basic seed demand
- Ensure release of technologies under Pre-release/pipeline

Acknowledgements



Small scale Farmers

Research Scientists in all 3 countries



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- Zikomokwa mbiri
- Muito obrigado, pela vossa atenção
- Thank you very much for your attention