agriculture
& rural development

Department:
agriculture
& rural development
PROVINCE OF KWAZULU-NATAL

PROGRAMME 2:

Agricultural Development Services

CHIEF DIRECTORATE:

Agricultural Research, Development and Training Institutes

DIRECTORATE:

Agricultural Livestock Research Services

ANNUAL OPERATIONAL PLAN

2018-2019






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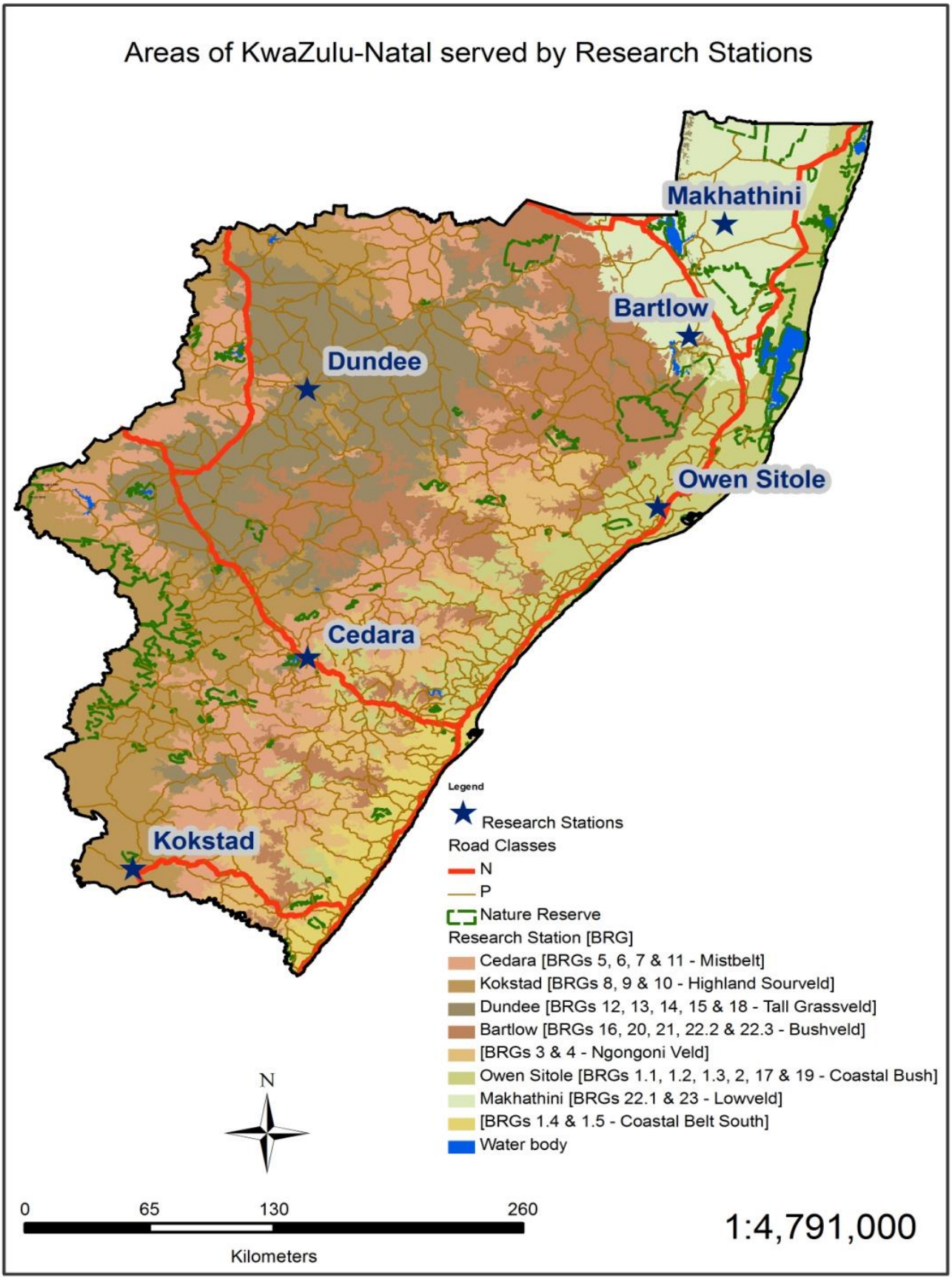
Areas of KwaZulu-Natal served by Research Stations
Makhathini
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Cedara
Kokstad
Legend
Research Stations
Road Classes
N
P
Nature Reserve
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Water body
N
0
65
130
260
Kilometers
1:4,791,000

Introduction

In its Vision the KZNDARD directs development towards "an inclusive, sustainable and radically transformed agricultural sector that builds thriving communities in balance with nature". With animal production a very important commodity and role player in agricultural production in KZN with livestock production currently contributing approximately 46.5% of the total KZN agricultural value (According to DAFF).

The Province has a total of 6.5 million hectares of land for farming purposes of which 82% is only suitable for extensive livestock production leaving only 18% as suitable for arable land for crop production. Of the total grazing area of KZN 33.4% is communal and this area currently contributes below its potential towards the economy of the province. The communal area carries as much as 55% of the cattle, 19% of the sheep and 74% of the goat populations of the Province. Huge potential exists in the communal/traditional livestock sector with the ability to contribute to the ever increasing demand for livestock products, as shown by the success of the communal livestock (cattle and goat) auctions organised in communal areas.

It has being estimated that the requirement for livestock products will have doubled by 2050, consequently livestock output will need to double, on an ever diminishing resource to meet the need and demand for livestock products. The harsh reality thus is that we need to double output off the same, and probably even less, available resources taken to urbanization and the increasing population, with climate change adding a further serious challenge on the productivity and sustainability of agricultural production.

It is thus evident that a continuous effort and investment in a needs-driven research and technology development programme is essential and critical to provide new innovative solutions to these problems and adapted research to overcome constraints or bottlenecks in production. Through the research and technology development and transfer programme, the Directorate: Agricultural Livestock Research Services provides the necessary scientific backup and support to the Strategy of the Department, as per the outcomes and resolutions taken at the Didima Strategic Planning Workshop during November 2016. The outcomes of the investment into research and technology development are as follows:

(i) Information and knowledge based on sound science
(ii) Genetic conserved indigenous livestock
(iii) Maintained and up-to-date research infrastructure
(iv) Information and knowledge disseminated.

The Directorate comprises of three Sub-directorates, namely (i) Livestock Science Research Services, (ii) Grass & Forage Scientific Research Services and (iii) Agricultural Research Farms, with their respective purposes:

- Undertake livestock science research services: Scientific Manager: Dr Trevor Dugmore
- Undertake grass and forage science research services: Scientific Manager – Vacant (Dr Trevor Dugmore standing in)
- Farm Services - Manage and maintain research stations: Deputy Director: Mr Johan van Rensburg.

The customers/clients of research are farmers, advisors & extension officers, industry, NGO's (e.g. Mdukatshani Rural Development Project), universities, ARC, companies, commodity organizations, organized agriculture and HEIFERSA.

Importance of the Research Stations and Research Directorates

The Department's six research stations, namely Cedara, Kokstad, Dundee, Makhathini, Owen Sitole (OSCA) & Bartlow Combine, are required to conduct research on-station, to build expertise and to be used for technology transfer. These research stations serve the major agricultural ecological areas within the Province, making research results applicable to agricultural production in the Province. Research stations need to be maintained, improved and used to their full potential.

Critical roles of research stations are as follows:

- Provide sites for key research initiatives that are not suited to being conducted on farms (e.g. grazing management studies, testing of cultivars, disease control research, research that may cause risk to the farming enterprise).
- Lead by example through the application of Good Agricultural Practices where appropriate. It should be noted that both positive and negative parameters form part of research procedures
- Become 'hubs of expertise' in terms of serving agriculture in other appropriate areas (including those surrounding the research stations) e.g. to host training courses, farmers days, visits by study groups, students, school groups and farmers
- Allow for long term trials
- Represent the different bio-resource groups of the Province where practices applicable for the different resource groups can be demonstrated, researched and new initiatives developed.

Staff

Filling of vacant posts, at all levels within the Directorate, is very critical. The vacancy rate have reached a stage where research activities on our research stations will have to be scaled down/terminated due to critical posts not filled.

See the AOP's of the Sub-directorates for a detailed breakdown of the current situation.

Contribution by Research Directorate(s) staff to Science and Training in KZN (& South Africa)

Many of our Professional Researchers act as mentors to graduates undergoing in-service training or on mentorship programmes offered by the Department. Further contributions include acting as external examiners and moderators for University courses, marking both MSc and PhD (post-graduate) thesis as external examiners for Universities from both in and out of the Province. Numerous Grade 12 learners studying agriculture as a subject visit our Research Stations & Laboratories to gain insight on agriculture and as a subject and career.

Research & Farm Services Staff on the Research Stations also undertake the following in addition to their research and research station duties:

- Host high school visits, particularly by learners studying agriculture
- Mentoring diplomats or graduates undergoing learnerships or internship on the research stations
- Mentoring candidate scientists and technicians
- Assisting TVet colleges, MUT, UKZN, UNIZULU with student practical's on the research stations
- Staff assist, convene and lecture short courses, assist with practical on the research station
- Assist Universities by allowing them to utilise our research facilities from time to time
- Staff assist with technology transfer, including veld condition assessments, and general farming, livestock management and veld management advice to farmers in all the sectors of the industry
- Staff are active co-operators in programmes like the Goat Agri-business project in KZN
- Staff are actively involved in community projects, such as the Nquthu Wool farmer Project and with Imvu farmers in Zululand and Maputaland.
- Researchers are regularly approached by other staff to assist them with the research projects required for their studies.
- Scientists are represented on agricultural commodity forums such as the RPO, NWGA, MPO (KZN), MilkSA R&D committee, Animal Health Forum for KZN.
- Farm Services contribute by hosting school groups and other visiting groups
- Farmer's day preparations – including the use of our facilities by outside organisations

Annual Budget Allocation

The budget allocated to the Directorate is as follows:

- Compensation of employees: 80 679 000 (65% of budget)
- Goods & Services: R29 519 000

- Capital Assets: R13 146 000 (Buildings: 6 780, Machinery: 5 816 & Biological Assets: 550)
- Transfers: R213 000

TOTAL ALLOCATION: R123 647 000

It needs to be pointed out that additional budget is urgently needed to address aging infrastructure, tractors & equipment, perimeter fence of research stations need to be replaced and upgraded, houses on research stations need to be renovated. Detailed information available in the AOP's of the Sub-directorates.

Annual Operational Plan

The outputs in terms of research and technology development and transfer as well as support from the Farm Services Sub-directorate are documented in the 2018/19 Annual Operational Plan for the Directorate.

J F de Villiers
Director: Agricultural Livestock Research Services

2018/19 Annual Performance Plan – Annual Targets

Outputs		Performance Measures	Definition	Frequency	Evidence	Baseline Annual Target 2018/19	Deficit	Agricultural Livestock Research Services						Total Output 2018/19	Totals per Quarter				Total Output 2018/19
								Baseline Target 2018/19	Q1	Q2	Q3	Q4	Total		Q1	Q2	Q3	Q4	
Research Services and Technology Development	5.1.1	Number of research project plans approved which address specific commodity's production constraints	Number of approved research proposals or projects plans relating to specific commodity which can either be crop production, andimal production or resource	Quarterly	Approved document	1	-1	**Livestock Science Research Services**											
								Planned	1	0	0	1	0	1	1	0	0	1	0	1
								Actual Output	0					0	0	0	0	0	0	0
								Grass & Forage Scientific Research											
								Planned	0	0	0	0	0	0	Quarter 1					
								Actual Output	0					0	Quarter 2					
															Quarter 3					
															Quarter 4					
	5.1.2	Number of research projects implemented which address specific production constraints	Number of all research projects implemented within the financial year	Annually	Approved project proposal, Progress report	17	-17	**Livestock Science Research Services**						Total Output 2018/19	Q1	Q2	Q3	Q4	Total Output 2018/19
								Planned	7			7	7	17	0	0	0	17	17
								Actual Output	0					0	0	0	0	0	0	0
								Grass & Forage Scientific Research											
								Planned	10			10	10	Quarter 1					
								Actual Output	0					0	Quarter 2					
															Quarter 3					
								No final report							Quarter 4					
	5.1.4	Number of demonstration trials conducted	Trials conducted to demonstrate technologies which addresses specific commodity / production constraints	Annually	Approval, Progress Report & Final Report	3	-3	**Livestock Science Research Services**						Total Output 2018/19	Q1	Q2	Q3	Q4	Total Output 2018/19
								Planned	3			3	3	3	0	0	0	3	3
								Actual Output	0					0	0	0	0	0	0	0
								Grass & Forage Scientific Research											
								Planned	0					0	Quarter 1					
								Actual Output	0					0	Quarter 2					
															Quarter 3					
															Quarter 4					
	5.1.5	Number of scientific papers published	Papers published by and accredited national or international scientific journal	Annually	Copy of published paper	1	-1	**Livestock Science Research Services**						Total Output 2018/19	Q1	Q2	Q3	Q4	Total Output 2018/19
								Planned	1			1	1	1	0	0	0	1	1
								Actual Output	0					0	0	0	0	0	0	0
								Grass & Forage Scientific Research											
								Planned	0					0	Quarter 1					
								Actual Output	0					0	Quarter 2					
															Quarter 3					
															Quarter 4					
	5.1.6	Number of samples analyzed	Number of Agricultural samples submitted for analysis (soil, water, food samples & crop protection - samples received by labs)	Quarterly	Sample number register & copy of duplicate receipt book	0	0							Total Output 2018/19	Q1	Q2	Q3	Q4	Total Output 2018/19
														0	0	0	0	0	0	0
														0	0	0	0	0	0	0
	5.1.7	No of mushroom packs produced	This is the number of substrate packs from whcih the mushrooms are cultivated	Quarterly	Copy of receipt book	0	0													
														0	0	0	0	0	0	0
														0	0	0	0	0	0	0
Information Services	5.2.1	Number of information packs developed	Research and technology development information packs developed/revised for the client base - to re-package research information to suit the needs of the clients	Quarterly	Copy of the information pack	3	-3	**Livestock Science Research Services**											
								Planned	1			1	1	3	0	1	1	1	3
								Actual Output	0					0	0	0	0	0	0	0
								Grass & Forage Scientific Research											
								Planned	2		1		1	2	Quarter 1					
								Actual Output	0					0	Quarter 2					
															Quarter 3					
															Quarter 4					

Information Services	5.2.2	Number of articles in popular media	Articles resulting form reseach and technologies puclished or broadcasted int eh popular media e.g. Magazines, newsleters, pupular journals	Annually	Copies of publicaion or broadcasting detail	2	-2	**Livestock Science Research Services**							**Total Output 2018/19**	**Q1**	**Q2**	**Q3**	**Q4**	**Total Output 2018/19**
								Planned	**1**			1		**1**	2	0	0	1	1	2
								Actual Output	0					**0**	**0**	**0**	**0**	**0**	**0**	**0**
								Grass & Forage Scientific Research													
								Planned	**1**				1	**1**	Quarter 1						
								Actual Output	0					**0**	Quarter 2						
															Quarter 3						
															Quarter 4						
	5.2.3	Number of technology transfer events conducted **(excluding the demand driven requests)**	Technology transfer events that the sub-programme organizes	Quarterly	Agenda, presentations, dated photographs, attendance registser	2	-2	**Livestock Science Research Services**							**Total Output 2018/19**	**Q1**	**Q2**	**Q3**	**Q4**	**Total Output 2018/19**
								Planned	**2**		2			**2**	2	0	2	0	0	2
								Actual Output	0					**0**	**0**	**0**	**0**	**0**	**0**	**0**
								Grass & Forage Scientific Research													
								Planned	**0**					**0**	Quarter 1						
								Actual Output	0					**0**	Quarter 2						
															Quarter 3						
															Quarter 4						
	5.2.4	Number of presentations made at technology transfer events. **Planned = Number of reports Actual Output = Number of presentations to be included in reports**	(i) A scientific event in this context includes presentations made at scientific congresses, conferences, seminars, symposium and workshops	Quarterly	Presentation printout or programme indicating name of presenter or abstract of proceedings	3	-3	**Livestock Science Research Services**							**Total Output 2018/19**	**Q1**	**Q2**	**Q3**	**Q4**	**Total Output 2018/19**
															3	0	3	0	0	3
								Planned	0					**0**	**0**	**0**	**0**	**0**	**0**	**0**
								Actual Output	0					**0**						
															Quarter 1						
								Grass & Forage Scientific Research							Quarter 2						
								Planned	3		3			**3**	Quarter 3						
								Actual Output	0					**0**	Quarter 4						
			(ii) Presentations made at technology transfer events such as farmers days, information days, study groups, seminars	Quarterly	Presentation printout or programme or attendance register	30	-30	**Livestock Science Research Services**							**Total Output 2018/19**	**Q1**	**Q2**	**Q3**	**Q4**	**Total Output 2018/19**
															30	22	8	0	0	30
								Planned	17	12	5			**17**	**0**	**0**	**0**	**#REF!**	**0**	**0**
								Actual Output	0					**0**						
											Branding course postponed				Quarter 1						
								Grass & Forage Scientific Research							Quarter 2						
								Planned	13	10	3			**13**	Quarter 3						
								Actual Output	0					**0**	Quarter 4						
Infrastructure Support Services	5.3.1	Number of research infrastructure provided	Number of research infrastructure made available for reserach and technology development. Research infrastructure refers to research farms and facilities	Annually	Expenditure report or Farm Registers or Facility Registers or Title Deed	6	-6	**6 x Research Farms**							**Total Output 2018/19**	**Q1**	**Q2**	**Q3**	**Q4**	**Total Output 2018/19**
															6	0	0	0	0	0
	5.3.2	Number of research infrastructure maintained	Number of research infrastructure maintained to enhance the implementation of research and technology development projects. Research infrastructure refers to research farms and	Annually	Expenditure report or Farm Registers or Facility Registers or Title Deeds	6	-6	**6 x Research Farms**							**6**	**0**	**0**	**0**	**0**	**0**

Sub-Directorate: Livestock Science Research Services

Financial year: 2018-2019

TREVOR DUGMORE

1. Introduction

Animal production (dairy, beef, sheep and goats) off grazing is an important contributor to the gross agricultural product of KwaZulu-Natal. Most of the province is only suited to grazing as a sustainable land use option. Livestock also form an integral part of Zulu culture and heritage. Consequently, research and technology development into the sustainable utilization of this resource base by livestock is critical. The indigenous breeds of the province are important culturally and offer potentially better adapted animals to endure the predicted climate changes; therefore the breeds indigenous to KZN are actively conserved and characterised for adaptability and productivity. High value animal products such as dairy, wool and aquaculture also form an important aspect of livestock research.

2. Clients and socio-economic impact

The customers of the Division vary from resource poor communal farmers and Universities through to internationally competitive commercial farmers. Milk production is a key aspect in fighting malnutrition in the Province, consequently emphasis is placed on dairying for home consumption and for internationally competitive commercial production, with regular dairy courses presented and advice offered on dairying. Beef, sheep and goat production are also important research and technology transfer focus areas, also catering for farmers ranging from rural resource poor, to breeders of indigenous livestock and commercial livestock farmers.

Clients range from departmental extension staff and consultants to farmers ranging from small scale to commercial, as well as NGO's, Universities and organized agriculture.

3. The focus of the Division is:

The focal areas of the livestock research and technology development and training programme are:

- The development of appropriate technology for the sustainable use of the natural resource base by livestock.
- Evaluation of plant species/cultivars adapted to the various bio-resource areas of KZN for livestock production
- Developing technical requirements required for the optimal production off cultivated pastures.
- Genetic conservation and characterisation of the various breeds of livestock indigenous to the province – Nguni cattle at Bartlow Combine, indigenous sheep at Makhathini & Dundee, indigenous goats at OSCA & Cedara.
- Adaptation and development of technology appropriate to livestock production in KZN for dairy, beef, sheep, wool and goat production.
- Specialist advice and training on livestock production.

4. Staff component

Refer to attached organogram (According to Departmental Structure) Appendix 1.

5. Research Infrastructure

The Livestock Science Research Services Division utilizes the infrastructure furnished on the Agricultural Research Farms Sub-Directorate, namely:

- Cedara
- Kokstad
- Dundee
- Makhathini

- Bartlow Combine
- OSCA

Infrastructure Maintenance Requirements				
Division/Farm	**Need**	**Action**	**2018/19**	**2019/20**
Animal Science				
Dundee	Feeding pens, Crush pens and sheep handling facilities	Replace existing cables, Replace broken gates & Roofs to be repair and painted	25 000	30 000
Dundee	Milling room	Fix and repair roof and gutters, Paint inside and outside, Silo's to be waterproof .	120 000	
Dundee	Dairy	Fix and repair roof and gutters, • Paint inside and outside & • Replace broken door, fly mesh, wall and floor tiles	20 000	20 000
Dundee	Cattle handling facilities	Cattle Handling facilities repairs on Dundee	20 000	20 000
Dundee	Painting and bird proofing of Dundee Dairy	Painting and bird proofing of Dundee Dairy	10 000	
Dundee	Repairing of roof, Lick shed Animals Science	Repairing of roof, Lick shed Animals Science	100 000	
Dundee	Shearing shed	Painting and repairs to roof and doors shearing shed	30 000	
Dundee	Waterproofing milling room	Waterproofing milling room	10 000	
All Stations	Livestock Handling facilities	Livestock Handling facilities – maintenance and repair - R 10 000 per station per year over the next 3 years = R 60 000 p.a.	60 000	60 000
Cedara	Milk Room	Floor (drainage)	10 000	
All Stations	Chemical Storeroom	Lockable with ventilation	500 000	
Kokstad		Enclosing livestock slab	30 000	
Kokstad	Milling room		3 000	
Kokstad	Shearing shed	Secure the shed	10 000	
Cedara	Hayshed (burnt in fire)	Repair Hayshed (burnt in fire) at Broadacres	50 000	
Cedara	Gutters on Broadacres buildings	Replace gutters on Brodacres buildings	40 000	
Cedara	Dip room roof - Broadacres	Dip room roof repair – Broadacres	15 000	

Infrastructure Maintenance Requirements				
Division/Farm	**Need**	**Action**	**2018/19**	**2019/20**
Cedara	Met Building	Whirly birds for ventilation	10 000	
Makhathini	Fish pond at Makhathini	rehabilitate 1 per year at R 10 000 p.a. over next 4 years	10 000	10 000
Kokstad	2 haysheds	Repair 2 haysheds at Kokstad	20 000	

- Red font = Sub-directorate does not have those funds available for infrastructure maintenance

5.1 Biological Assets

The critical requirement for livestock breeding (female breeding stock, excluding follower animals) herds maintained for research to supply sufficient animals for research and training are given below. Unfortunately, due to staff and budget constraints as well as other challenges such as disposal of cull/surplus animals and the recent drought there are fewer/greater than the desired numbers on some stations.

Breeding animals		**Desired number**	**Actual number**
Dairy Research on Cedara	-	120 breeding animals	40 cows + 20 mateable heifers
Goats on Cedara	-	120 breeding animals	120 indigenous boats
Beef on Cedara	-	120	50 Nguni + 50 Hereford
Beef on Kokstad	-	240	127 Nguni + 68 Hereford
Sheep on Kokstad	-	300	290 Merino
Beef on Dundee	-	150	45 Sussex + 98 Nguni
Dairy on Dundee	-	10	10
Sheep on Dundee	-	180	71 Merino + 43 Imvu
Imvu on Makhathini	-	100	60
Nguni on Bartlow	-	150	120
Goats on OSCA		???	398

Total value of the livestock is approximately: R 10 000 000.00

6. The aims and the objectives (Key Results Areas) of the Division are:

1. Research (design, implementation, analysis, scientific article and presentation on research trial)
2. Technology transfer
3. Personnel Training and Mentorship
4. Administration duties and responsibilities
5. Networking & linkages

7. Budget allocation 2018/19

Compensation of employees		R	26 451 000.00
Goods and Services		R	6 239 000.00
Capital Assets		R	1 150 000.00
	TOTAL	**R**	**33 840 000.00**

8. Outcomes

KRA 1: Conduct Research and Demonstration Trials

Project Number	Person Responsible	Short Title	Objectives	Duration of project (year)	Impact
AS-B2012/01BC	S Ngcamu (Bartlow)	The effect of different management / breeding strategies on Nguni cattle performance	To determine the effect of early breeding of heifers and out of season calving on cow productivity.	2012-2022	Gain an understanding of the impact of an unrestricted breeding season on herd productivity – applicable to communal grazing systems
AS-B 08/01D	P Oosthuizen (Dundee)	An investigation into the effect of different breeding strategies on an Nguni herd's performance	To compare animal performance between a restricted breeding season and weaning with an unrestricted breeding season with or without forced weaning	2008-2020	Be able to quantify the productivity of the livestock production systems
AS-B 08/02 K	M Magawana (Kokstad)	The effect of night time kraaling on cow productivity and fertility of cattle at Kokstad Research Station.	To determine the effect of night time kraaling, without supplementary feed, on cow productivity and fertility.		Progress Report
AS-2016/01C	Angelo Pienaar Caretaker (Cedara)	Evaluation of fescue grazing for finishing beef steers	To establish if beef steers can be finished for slaughter off fescue pasture	2016-2020	Finishing steers on pasture as a viable alternative to feedlotting
AS-D2013/01 KZN (run on Kingusie Dairy Farm)	D Nash (Cedara)	Accelerated calf rearing	Determine the effect of accelerated calf rearing on dairy calf and heifer growth, as well as first lactation milk production	2014-2018 (Final Report)	A system for improved growth rates of calves pre-weaning
AS-2016/02	T J Dugmore (Cedara)	Mineral composition of kikuyu in different environments	To establish mineral composition differences in different environments and the effect of liming acid soils	2017-2020	Understanding of geographical changes to improve livestock feeding off kikuyu

Project Number	Person Responsible	Short Title	Objectives	Duration of project (year)	Impact
AS-S10/01D	E van Zyl (Dundee)	Investigate the potential of Sericea lespedeza as summer grazing for sheep	• To evaluate the potential of the crop under sheep grazing • To investigate the anthelmintic properties of lespedeza • To establish production norms for NW KZN	2010-2020	Anthelmintic properties established for forage species with potential for biological control as part of a holistic health management programme Publication
AS-S 08/03 K	M Magawana (Kokstad)	Establish the effect an unrestricted breeding season in a system with no fencing vs a restricted breeding system for sheep on the Kokstad Research Station.	To determine: • the effect of early breeding of lambs and out of season lambings on ewe productivity. • The effect on animal fertility • The effect on lamb survival and productivity	2008-2020	Gain an understanding of the impact of an unrestricted breeding season on herd productivity – applicable to communal grazing systems
AS-2014/01 uMkhanyakude	M Khanyile (Makhathini)	Survey of subsistence aquaculture practices on the Pongolo floodplains & pans.	To identify constraints to fish harvesting and food security which can be resolved through research	2014-2018 (Final Report)	Identified constraints and existing indigenous knowledge and identified research needs.
AS-2017/01C	DZ Ndlovu (Cedara)	The effect of supplementation on the Performance and Carcass yield of Indigenous Goats grazing Cocksfoot in the Moist Midlands Mistbelt of KwaZulu-Natal.	To evaluate performance and meat production of goats grazing cocksfoot with strategic supplementation of concentrates. The aim is to determine the effect of supplementation and growth rates on slaughter weight of weaners	2017-2020	Useful information obtained to quantify the potential for meat production from indigenous goats.

8.1 Demonstration

Project Number	Person Responsible	Short Title	Objectives	Start & Finish (year)	Impact
AS-B 08/01 C	Angelo Pienaar Caretaker (Cedara)	DEMO: The grazing of Nguni and Hereford beef breeding cows on kikuyu for 12 months of the year. Backgrounding of weaners on foggage/ supplementing.	To demonstrate the management system of running a beef breeding herd on kikuyu pasture for the whole year.	1989- 2020	Report – write up Student training
AS-D 03/01D	P Oosthuizen (Dundee)	Small scale dairying in an integrated farming system	Demo: To demonstrate the management system, fodder flow and effective use of waste in a small scale dairying system	2003- 2020	Technology transfer & training. Collecting norms for productivity for a small-scale dairy operation
AS-S 09/1 D Upgrade to a full research project	P Oosthuizen / E van Zyl (Dundee)	Genetic conservation and characterization of the indigenous sheep (Imvu) of KZN	• To access current practices used by Imvu farmers by conducting a census; • acquire breeding animals to establish a separate line/flock of Imvu on the Dundee Research Station • characterization of the breed • supply breeding of rams	2007-2020	Production characteristics established. Maintenance of the gene pool and breeding material made available to Imvu breeders

8.2 Co-operative Research

Person Responsible	Institution	Short Title	Objectives	Start & Finish (year)	Outputs for the year

8.3 Guest Research

Person Responsible	Institution	Short Title	Objectives	Start & Finish (year)	Outputs for the year

8.4 Suspended Projects

Project Number	Person Responsible	Short Title	Objectives	Start & Finish (year)	Reasons

8.5 New Projects for Approval

Person Responsible	Short Title	Objectives	Impact
K Mkhize (Makhathini)	The characterization of the indigenous Zulu sheep (Imvu) in Zululand	To quantify the productive attributes and traits of Imvu and their adaptation to the hot, disease ridden environments of KZN	Project registered
Phumzile Msuntsha (Dundee)	Wool sheep demonstration for small-scale wool producers farmers	To improve productivity of wool sheep in small-scale communal system	Improve the income of communal households through wool production
Developing a weigh band for beef cattle (A Pienaar) (Cedara)	To develop a weigh band for beef cattle to estimate weights where weighing facilities are not available	More accurate weight estimates as a management tool	To develop a weigh band for beef cattle to estimate weights where weighing facilities are not available
M Khanyile (Makhathini)	The effect of graded levels of green algae ulva meal (*Ulva rigida*) on the growth and performance, Physio-chemical attributes, fatty acid composition and shelf life of *Tilapia rendalli* fillets	Evaluate dried green algae as a feed source for Tilapia	An alternative feed source identified for animal production

M Khanyile (Makhathini)	Survey on the DNA of indigenous fish species in different river systems found in Ukhanyakude District Municipality	To determine if the local eco-types of fish in different river systems are genetically different	If not different, there will be a basis for supplying fish to a another catchment
M Khanyile (Makhathini)	Demonstrate aquaculture production systems for warm water species	• To demonstrate aquaculture production systems • To produce fingerlings • Document to describe the system and inputs	Training, demonstrate technology and the production of fingerlings for farmers and re-stocking of pans on the Pongolo floodplain

8.6 Future Research

Short Title
Evaluation of grazing and forage species and cultivars for improved animal production (inland stations) – Dairy Sustainable/ alternative pastures for dairy production - (Cedara) - dairy
Evaluation of factors affecting the nutritive value of feeds (Cedara) - dairy • Fertilization • Irrigation • Environmental factors • Feed and silage additives
Overwintering of livestock (Dundee, Kokstad, Makhathini) • Communal cattle – free ranging livestock • Land reform/commercial farmers – with grazing management systems in place • Supplementation • Utilization of cover crops by livestock
Utilization of cover crops by livestock as an overwintering strategy (Cedara, Kokstad)
Conservation and characterization of the productivity of breeds indigenous to KZN (Cedara, Dundee, Bartlow, Kokstad, Makhathini- see 8.7) • Do Nguni browse? • Distance Nguni cattle walk during the day foraging when kraaled at night • Effect of ambient temperature on feed intake and grazing time • Use of Nguni as a terminal cross dam line
Grazing management practices of optimal animal production and sustainable utilization of the natural resources (Kokstad, Bartlow, Dundee) • Communal free ranging livestock vs Controlled grazing (with fencing)

Short Title

Management practices affecting productivity of livestock.
• Internal & external parasites (Dundee, Cedara)
• Supplementation (All livestock stations)
  ○ Mineral supplementation
  ○ Protein licks
  ○ Energy licks
  ○ Creep feeding to calves/lambs
Are mineral/trace mineral deficiencies restricting growth rates of livestock in the Sand Forrest in Maputoland (Makhathini)

Evaluation of non-conventional feedstuffs – Makhathini Research Station
Communal Poultry production (FSR)
Mitigation of climate change on livestock production – to be built into the protocol of research trials – climatic data linked to performance: all stations
Makhathini – Sand-forest site (Top farm) – Food security demonstration in conjunction with Crops Research Services – need to replace boundary fence, Technically staff required, Budget for upgrading infrastructure (e.g. dams, fences, pipelines)

8.7 Management of livestock herds

Actions	Tasks	Outputs
Implement a management calendar of livestock herds and flocks on the research stations by Scientific technicians	Record and monitor the production of livestock herds and flocks on research stations and report on the herd production statistics	Monitoring performance over time/season.
Economic viability of goats on improved pastures	Model the fodder flow, management and economic viability of a 100 doe goat flock on pasture.	Production plan for goats on pasture
OSCA indigenous goat flock	Genetic conservation flock used by Grass & Forage as well as UNIZULU, for research trials.	Fill vacant post

KRA 2: Technology Transfer

Actions	Name	Outputs for the year
Write 3 Research bulletins, popular reports or manuals	S Morning (freeze branding) D Nash (reducing kid mortality) P Oosthuizen (Indigenous Zulu sheep) P Msuntsha (Red lice on sheep) M Magawana – Post weaning performance of lambs (on veld)	Information pack developed
Scientific and popular papers	T J Dugmore (SAJAS – Kikuyu review) Mbongeni submitted 3 Scientific papers	Publications submitted/published
Present lectures at the Dairy short course. As per short Course Programme	T Dugmore, D Nash & S Morning	Courses presented as per short course Programme
Present lectures at a Basic Beef Course at Dundee Research Farm	P Oosthuizen, EA van Zyl & P Msuntsha	As per short course programme
Present lectures at Hot Iron Branding Course at Cedara Research Farm	A Pienaar	As per short course programme
Sheep shearing training – Kokstad & Dundee (2)	Mpume Magawana & Peter Oosthuizen	
Pasture for sheep demo at Pakkies (Kokstad)	William Diko	Small-scale farmers trained
Present lectures at the goat production course at Cedara	D Nash and Grassland Science staff	Train extension staff, farmers and advisors as per short course programme
Bartlow Combine Farmers' Day	Bartlow Staff, Trevor & Francois	November 2018 (Sheep from Makhathini, goats from OSCA, Goat Agri Business Project, box baler, use of Acacia leaves to feed animals (Mbongeni), Primary Health Care - Vet inputs)
Mentorship of interns and experiential learners	Animal Science staff	Performance Report 2 Cedara, 2 at Dundee, 3 at Makhathini, 5 at Bartlow (OSCA Students)
Present lecture/talks at farmers days, symposia and workshops	All scientific staff	On demand
Ad hoc advice to farmers on livestock production and assistance with interpreting feed laboratory analysis. Assist with formulating rations	All scientific staff	On demand

KRA 3: Personnel Training

Actions	Name	Outputs for the year
Reading of scientific literature	All Scientists & Technicians	Increase knowledge in field
No Congress – Possible 1 day SASAS event during 2018	TJ Dugmore, M Magawana, M Khanyile, P Oosthuizen & Phumzile Msuntsha	Present Paper/poster & Continued Professional Development
Attend other relevant ad hoc workshops, congresses and symposia that are offered during year	Relevant Staff to attend	Keeping abreast with the latest literature/technology and networking with other scientists
Ad hoc discussions and queries with relevant expert	Relevant Staff as opportunity arises	Keeping abreast with the latest literature/technology and networking with other scientists
Keep abreast with farmer needs	All Scientific Staff	Relevant research and technology transfer programmes through individual contacts, workshops and meetings
Visits to other institutions/areas	Relevant Staff as required	Keeping abreast with the latest literature/technology and networking with other scientists
Attend NAMPO – apply to attend early in year	S Ngcamu, Kwazi Mkhize,	

KRA 4: Administrative Duties and Responsibilities

Admin duties	Name	Outputs for the year
Upkeep and maintenance of the dairy, beef, sheep and indigenous livestock herds for use in research trials, demonstrations, training and the genetic conservation of livestock indigenous to the province.	Relevant Staff	Monthly livestock reports
General maintenance of field, nursery, dairy, shearing and laboratory equipment on Cedara, Kokstad, Dundee, Makhathini, Barlow Combine & OSCA	Relevant Staff	Functioning equipment
Supervision of staff	All Supervisors	Staff supervision and administration is carried out.
Purchase of necessary goods for trials, for maintenance of infrastructure and herd management	All Supervisors	Trials can be carried out as goods have been purchased.
Maintain up-to-date and correct monthly and daily stock records	All Supervisors	Correct stock records

Admin duties	Name	Outputs for the year
Maintain vehicle logs	All Supervisors	Up to date vehicle logs
Maintain vehicles & agricultural equipment	All Supervisors	Serviced vehicles
Staff discipline and motivation	All Supervisors	Efficient and effective staff
Division admin (leave records, overtime claims, finances, stock reports, memos and reports, etc)	All Supervisors	
EPMDS evaluations of all staff by supervisors	All Supervisors	Efficient and effective staff

KRA 5: Networking and Linkages

Institutions	Name	Outputs for the year
Extension and Advisory Staff	All Technical Staff	Reciprocal knowledge interchange, practical research and informed extension staff
Universities & Colleges, Other Academic Institutions	All Technical Staff	
Scientific Congresses/Symposia & Farmers Days	All Technical Staff	
Consultants	All Technical Staff	
ARC, DAFF & Other Provincial Departments	All Technical Staff	
KZN MPO, KZN RPO & NWGA	Relevant Technical Staff	
NGO's including Mdukatshani, Heifer SA	TJ Dugmore, JF de Villiers	

9. Challenges

9.1 Staff

Vacant post in Sub-directorate summarized below according to the approved Departmental Structure:

Total number of posts	Posts filled	Vacant posts
150	61	89

Staff component per station							Posts – As per establishment	Vacant posts
Rank	Cedara	Kokstad	Dundee	Bartlow	Makhathini	Total		
Scientific Manager	1					1	1	0
Admin Clerk	1					1	1	0
Specialist Scientists	vacant					0	2	2
Scientists	0	1	vacant	0	2	3	10	7
Control Technician	1					1	1	0
Technicians	1	vacant	2	1	vacant	4	12	8
ASO	2	vacant	1	vacant	vacant	3	6	3
Farm Foreman	vacant	vacant	vacant	vacant	vacant	0	6	6
Tractor Drivers	3	vacant	vacant	vacant	vacant	3	8	5
Farm Drivers	vacant	vacant	vacant	vacant	vacant	0	8	8
Farm Aides	13	5	3	5	19	45	95	50
Total Staff component						61	150	89

The following posts to be filled in a phased process with the most critical posts given priority are:

Rank	Based at:	2018	2019	2020
Scientific Manager	Cedara		1	
Specialist Scientist	Cedara – Dairy - ruminant nutrition	-	1	-
	Cedara - Small stock	-	-	1
Professional Scientist	Cedara - Dairy	1	-	-
	Cedara - Beef	1	-	-
	Cedara – Goats/small stock	1	1	-
	Dundee Research Station – Sheep	-	-	-
	Kokstad Research Station - Beef	1	-	-
	Kokstad Research Station - Sheep	-	1	-
	OSCA (Zululand - Goats)	-	-	1
Scientific Technician	Cedara - Dairy	1	-	-
	Cedara - Goats	-	1	-
	Kokstad - Sheep	-	1	-
	Kokstad - Beef	1	-	-
	Makhathini - Aquaculture	1	-	-
	Makhathini – Sheep (Imvu)	-	1	-
	OSCA – Goats	-	-	1
ASO	Kokstad Research Station	1	-	
	Makhathini Research Station – Aqua	-	-	1
Farm Foreman	Cedara – Beef & dairy	2	-	-
	Bartlow Combine	1	-	-
	Dundee Research Station	-	-	-
	Kokstad Research Station	1	1	-

	Makhathini Research Station - Sheep	-	-	1

Rank	Based at:	2018	2019	2020
Tractor Drivers	Dundee Research Station	1	-	1
	Kokstad Research Station	1	-	1
	Cedara Goats			1
Farm Drivers	Cedara	-	1	1
	Kokstad Research Station	1	1	-
	Dundee Research Station	1	1	-
	Bartlow Combine	1	-	-
	Makhathini	-	1	-
Farm Aides	Cedara	2	2	5
	Kokstad	5	5	-
	Dundee	5	5	-
	OSCA	-	4	-
	Bartlow –process already in place	5	-	-
	Makharthini - sufficient	-	-	-
Additional to establishment – as per OSD dispensation for Scientists				
Candidate Scientist	On applicable research station		1	1
Candidate Technician	On applicable research station		1	1

- Refer to a detailed breakdown of filled and vacant posts per Sub-directorate before the attached organograms.

9.2 Supply Chain Management:

- The supply of goods procured by the Divisions but the supplier not able to deliver
- Prompt supply of fertilizer on contract – supplier refused to supply last financial year
- Ensuring the desired/required goods, bulls, rams, cultivars for research are procured
- Servicing and maintenance of essential scientific equipment required for research e.g. milking machine, scales

10. Additional needs

10.1 Budget

- Additional; funds for filling vacant posts in the new structure and for overtime by staff to ensure the welfare of livestock over weekends and public holidays
- Budget to re-fence the Research Farms to keep out dogs and other predators and keep our livestock in camps with decades old fencing.

10.2 Equipment & Machinery

- Milling equipment for Cedara Dairy

10.3 Infrastructure

As per infrastructure maintenance plan for Directorate

- New goat handling facilities on Cedara
- Maintenance of livestock handling facilities
- Dundee Research Farm cattle handling facilities
- Re-fence Research Station boundary and internal fences
- Up-grade Kokstad irrigation for winter pasture production

Sub-directorate: Grass & Forage Scientific Research Services

Financial year: 2018-2019

TREVOR DUGMORE

1. Introduction

Animal production forms a major portion of the gross agricultural product of KwaZulu-Natal. Most of the province is only suited to grazing as a sustainable land use option. Consequently, research and technology development into the sustainable use of the resource base (veld) by livestock is critical. Dairying in KwaZulu-Natal where KZN is a major role player in South African milk production (25% of SA production and mostly exported to Gauteng) is based on cultivated pasture, much of which is irrigated temperate pastures for winter production. Pasture plant introduction and evaluation, irrigation, fertilization and management practices are therefore important aspects of Grass & Forage Science research.

2. Customers and socio-economic impact

The customers of the Division vary from Universities, resource poor communal livestock farmers through to internationally competitive commercial farmers. Milk production is a key aspect in fighting malnutrition in the Province, consequently emphasis is placed on forage supply for dairying for home consumption and internationally competitive commercial production who supply a significant portion of the milk sold in Gauteng.

Customers range from departmental extension staff, consultants and farmers ranging from small-scale to commercial. NGO's, as well as Universities and organized agriculture.

3. The focus of the Division is:

The focal areas of the grass and forage research and technology development and training programme are:

- The development of appropriate technology, including the control of invasive/problem plants, for the sustainable use of the natural resource base.
- Evaluation of newly introduced/bred and existing plant species/cultivars adapted to the various bio-resource areas of KZN for livestock production.
- Evaluation of bio-active plant species/cultivars for anthelmintic properties.
- Developing technical requirements required for the optimal production of cultivated pastures, e.g. planting techniques, environmental requirements, fertilization, irrigation and grazing management.
- Adaptation and development of technology appropriate to forage production in KZN for dairy, beef, sheep, wool and goat production.
- Specialist advice and training on grass and forage production.

4. Staff component

Refer to attached organogram (According to Departmental Structure) Appendix 1

5. Research Infrastructure

The Grass & Forage Scientific Research Services Division utilizes the infrastructure furnished by the Sub-directorate: Agricultural Research Farms, namely:

- Cedara
- Kokstad
- Dundee
- OSCA

Division/Farm	Need	Action	2018/19	2019/20
Grassland Science				
Dundee	Agronomy and Pastures Section	Repair ceilings, Painting inside and roofs & Poison Store needed an extractor fan.	50000	
Kokstad	Irrigation system repairs?	Irrigation system repairs		20 000
Cedara	Ladies toilet & change rooms	Ladies toilet & change room at Grassland Science lower section	30 000	
	Ceiling in storeroom - repair & paint	Ceiling in storeroom - repair & paint	10 000	
	Enclose shed behind lower research building on Cedara Grassland Science	Enclose shed behind lower research building on Cedara Grassland Science	10 000	
	Cold room	Compressor requires repairs	15000	
	Fertilizer shed	Replace roller doors	3 0000	
	Drying ovens	Repair the drying ovens	20 000	
Kokstad	Field Lab	Replace roller doors	30 000	

- Red font = Sub-directorate does not have those funds available for infrastructure maintenance

6. The aims and the objectives (Key Results Areas) of the Division are:

1. Research (design, implementation, analysis, scientific article and presentation on research trial).
2. Technology transfer.
3. Personnel Training
4. Administration, duties and responsibilities
5. Networking & linkages

7. Budget allocation 2018/19

Compensation of employees	R	9 319 000.00
Goods and Services	R	526 000.00
Payment for capital assets	R	138 000.00
Households	R	17 000.00
Total	**R**	**10 000 000.00**

8. Outcomes

KRA 1: Conduct Research and Demonstration Trials

Project Number	Person Responsible	Short Title	Objectives	Duration (year)	Impact
GS-V 08/04 K	M Magawana (caretaker)	The effect of cattle to sheep ratio and stocking rate on veld condition (Simulation trial) on Kokstad Research Station.	Test the long-term effect of different stocking rates and ratios of cattle to sheep on veld condition in Highland Sourveld	1989-2020	Determine the long term effects of different veld management practices on the sustainable use of the veld and also monitor any effects of global warming.
GS-V 08/05 K	M Magawana (caretaker)	The effect of a two-camp "graze and blaze" system on veld condition, animal performance and soil loss, on Kokstad Research Station	Test the effects of a simple, two-camp blaze and graze system on sheep performance, veld condition and soil erosion in Highland Sourveld	1992-2020	Show the viability of a 2 camp grazing system in terms of both animal production and sustainable veld utilization
OSCA 39/3/07/7O	MF Msomi (OSCA)	Evaluation of tropical grass species *Bracheria* and *Pannicum* varieties	To evaluate summer tropical fodder species at OSCA for use in KZN livestock production systems	2013 - 2020	Establish adaptation and productivity norms for livestock production for hot/humid areas of KZN
GS-2017/04D	E van Zyl (Dundee)	Value of inclusions of legumes in pastures and secondary veld (old land – applicable to LRAD farms and degraded communal veld	Plant introduction - N fixation Test compatibility with grasses Legume establishment with or without *Trichoderma* on old abandoned crop lands –Station) and off station (Nquthu) Effect of introduced legumes in old croplands/secondary veld on sheep production	2017- 2022	Improve livestock productivity on secondary veld or old lands
GS-2017/05D	E van Zyl (Dundee)	Control of *Seriphium plumosum* in the Sandy sourveld	To control the encroachment of *Seriphium plumosum* into sandy grasslands	2017- 2022	To contain the effects of *Seriphium* on animal production

Project Number	Person Responsible	Short Title	Objectives	Start & Finish (year)	Impact
GS-L 2013/01K	D Berjak (Cedara)	Lucerne cultivar evaluation	To determine the highest yielding cultivar at two sites, namely Cedara and Kokstad Research Stations. Disease resistance and feed value will also be determined	2014-2018 Final report	Lucerne has potential to become a forage crop in KZN midlands.
GS-2013/04C	D Nash (Cedara)	Evaluation of the effect of round-up, soil temperature and soil moisture on the establishment of ryegrass oversown into kikuyu	To determine if round-up, has a residual effect on ryegrass establishment in kikuyu where round-up is used to reduce the kikuyu growth. To determine if the kikuyu, as a living mulch, has advantages in terms of soil temperature and soil moisture conditions, potentially improving the soil micro-climate and reducing irrigation requirements	2014-2019	Extended grazing season on irrigated kikuyu – double cropping
GS-2013/03C	D Nash (Cedara)	Evaluation of *Festuca arundinacea* (Tall Fescue) varieties, relative to other temperate species for herbage quality and grazing management to determine suitability as a lower input pasture for dairy systems.	To evaluate *Festuca arundinacea* (Tall fescue) varieties in terms of yield, including yield distribution, and nutritive value to ascertain its possible suitability for incorporation into dairy pasture systems as an alternative to perennial ryegrass.	2014-2019	Alternative pastures to Perennial ryegrass with lower water usage and higher heat tolerance
GS-2015/01C	DL Berjak (Cedara)	Evaluation of medium and long duration forage cereal varieties to be grown in a mixture with forage legumes	To determine which varieties of oats, stooling rye and triticale are best suited to grow with forage oats and to determine yield and forage quality of the mixes.	2016-2020	Viable cover cropping system for dairy.
GS-2016/02C	D Nash (Cedara)	Elite pasture cultivar evaluation trials	To determine the production potential of new cultivars available on the local market	2017-2021	Evaluate the best new cultivars for dairy production

Project Number	Person Responsible	Short Title	Objectives	Start & Finish (year)	Impact
GS-M2010/01O	CF Luthuli (OSCA)	Manure as alternative fertilizer for pastures	Evaluate the effect manures to replace chemical fertilizers for pasture production	2017 - 2021	Use of locally available organic resources as a fertilizer source for forage production
GS-2016/01O	C F Luthuli (OSCA)	Performance of goats supplemented with sweet potato vines	(i) To determine the knowledge of small holder farmers on supplementary feeding (ii) to evaluate the effect of cutting frequency on production and nutritive value and (iii)to determine the effect of feeding sweet potato vines on goat productivity	2016-2019	To gain knowledge on goat farming and to produce norms for the feeding of sweet potatoes to goats as an alternative feed source

Maintenance of germplasm

Person Responsible	Short Title	Objectives	Start & Finish (year)	Impact
DZ Ndlovu & D Nash (Cedara) Fikile Luthuli (OSCA) E van Zyl (Dundee)	Germplasm introduction, conservation and screening demonstration on research stations (Pending staff programmes and filling of vacant posts)	To introduce and maintain germplasm for future use	2014 - 2020	Conservation of genetic material. Demonstration to farmers Insufficient staff
M F Msomi (OSCA)	Napier fodder cultivar – OSCA & Makhathini	Maintain Napier fodder cultivars for production in Zululand as a source of germplasm for communal farmers	2012-2021	Maintain germplasm

8.1 Demonstrations

Project Number	Person Responsible	Short Title	Objectives	Start & Finish (year)	Outputs for the year

8.2 Co-operative Research

Person Responsible	Institution	Short Title	Objectives	Start & Finish (year)	Outputs for the year

8.3 Guest Research

Person Responsible	Institution	Short Title	Objectives	Start & Finish (year)	Outputs for the year

8.4 Suspended Projects

Project Number	Person Responsible	Short Title	Objectives	Start & Finish (year)	Reasons

8.5 New Projects for Approval

Person Responsible	Short Title	Objectives	Start & Finish (year)	Outputs for the year
E van Zyl (Dundee)	The value of chicory as a bio-active forage	• To investigate the anthelmintic properties • Role in a fodder flow programme	Determine feasibility of the project	To assist in the control of internal parasites

8.6 Future Research

Short Title		Impact
Evaluation of forage species and cultivars for improved animal production. Genetics changing, new varieties brought into country, climate change (Cedara, OSCA, Kokstad, Dundee, site at Makhathini)		Keep abreast of new technology, support livestock farmers with latest information of new varieties
Evaluation of factors effecting the productivity of forages: (Cedara, Kokstad, OSCA) - Fertilization - Water use efficiency - Environmental factors - Forage conservation (fertility in cooperation with Soil science)		Identify new climate smart forages
Veld management practices for sustainable animal production off veld, particularly communally grazed veld.		Identify novel systems of grazing management for communal; grazing
The genetic improvement and identification of suitable germplasm for future pasture production in KZN (Cedara, Dundee, Kokstad, OSCA)		Impacts on livestock production to identify the best possible forage
Identify suitable grass and legume species suitable for cover crops (All stations)		Conservation agriculture and winter fodder flow
Evaluation of pasture mixtures for dairy production (Cedara)		Increase pasture and livestock productivity
Evaluation of pasture mixtures for sheep production (Kokstad, Dundee)		Increase pasture and livestock productivity
The effect of soil temperature on pasture growth rate (Cedara, Kokstad)		To determine the effect of soil temperature on the growth of rye grass
Alternative forage plants (trees, shrubs, grass) at Bartlow Combine		Identify suitable forage species for the Zululand thornveld

KRA 2: Technology Transfer

Actions	Name	Outputs for the year
Write Research Bulletin or popular reports	D Nash E van Zyl, M Msomi & F Luthuli (Napier fodder) D Nash and D Berjak (Lucerne varieties)	Information pack developed

Actions	Name	Outputs for the year
Present lectures at the goat production course at Cedara	D Nash and Grassland Science staff	Train extension and farmers
Mentorship of interns and experiential learners	Grassland Science Staff	Performance Report
Present lecture/talks at farmers days, symposia and workshops	All scientific staff	On demand
Write Scientific and Popular papers	T Dugmore (Sheila's article) (S) Nash & Berjak (Lucerne varieties) (P) Chicory (Erika)	1 paper – Goats on stooling rye Erika – Sci article - submitted

KRA 3: Personnel Training

Actions	Name	Outputs for the year
Reading of scientific literature	All Scientists & Technicians	Increase knowledge in field
Attend GSSA congress July 2018	EA van Zyl, D Nash, F Luthuli, M Magawana, M F Msomi	Keep up to date with the latest scientific information, network and for Continued Professional Development
Attend other relevant ad hoc workshops, congresses and symposia that are offered during year	Relevant Staff to attend	Keeping abreast with the latest literature/technology and networking with other scientists
Ad hoc discussions and queries with relevant expert	Relevant Staff as opportunity arises	Keeping abreast with the latest literature/technology and networking with other scientists
Keep abreast with farmer needs	All Scientific Staff	Relevant research and technology transfer programmes through individual contacts, workshops and meetings
Visits to other institutions/areas	Relevant Staff as required	Keeping abreast with the latest literature/technology and networking with other scientists

KRA 4: Administrative Duties and Responsibilities

Admin duties	Name	Outputs for the year
Installation of field toilets at Kokstad Research Station and Cedara	W Diko	Hygienic toilet facilities, prevention of transfer of animal diseases
General Maintenance of field, nursery and field laboratory equipment on Cedara, Kokstad, Dundee & OSCA	Relevant Staff	Functioning equipment
Supervision of staff	All Supervisors	Staff supervision and administration is carried out.
Purchase of necessary goods for trials, for maintenance of infrastructure and herd management	All Supervisors	Trials can be carried out as goods have been purchased.
Maintain up-to-date and correct monthly and daily stock records	All Supervisors	Correct stock records
Maintain vehicle logs	All Supervisors	Up to date vehicle logs
Maintain vehicles & agricultural equipment	All Supervisors	Serviced vehicles
Staff discipline and motivation	All Supervisors	Efficient and effective staff
Division admin (e.g. leave records, overtime claims, finances, stock reports, memos and reports)	All Supervisors	
Half yearly EPMDS evaluations of all staff by supervisors	All Supervisors	Efficient and effective staff
Personal reporting & APP targets	Relevant Staff	Planning & accurate reporting

KRA 5: Networking and Linkages

Admin duties	Name	Outputs for the year
Extension and Advisory Staff	All Technical Staff	Reciprocal knowledge interchange, practical research and informed extension staff
Universities & Other Academic Institutions	All Technical Staff	
Scientific Congresses/Symposia & Farmers Days	All Technical Staff	
Consultants & relevant commodity groups	All Technical Staff	
ARC, DAFF & Other Provincial Departments	All Technical Staff	
SANSOR	Professional Scientists	

9. Challenges

9.1 Staff

Vacant post in Sub-directorate summarized below according to the approved Departmental Structure:

Total number of posts	Posts filled	No of vacant posts
68	28 + 1 Candidate Scientist	40

Staff component per station						Posts – As per establishment	Vacant posts
	Cedara	Kokstad	Dundee	OSCA	Total		
Scientific Manager	vacant				0	1	1
Sen. Admin Asst					0		0
Professional Scientists	1	vacant	1	vacant	2	8	6
Candidate Scientist	1				1	Additional to establishment – as per OSD scientist dispensation	
Control Technician	vacant				0	1	1
Technicians	1	1	vacant	2	4	5	1
ASO	1	1	1	vacant	3	6	3
Tractor Drivers	vacant	vacant	vacant	vacant	0	3	3
Farm Drivers	vacant	vacant	vacant	vacant	0	4	4
Farm Aides	8	5	3	3	19	40	21
Total Staff component					29	68	40

The following critical posts to be filled, phased in over 3 years according are:

Rank	Based at:	2018	2019	2020
Scientific Manager	Cedara	1		
Professional Scientist	Cedara Dundee Research Station Kokstad Research Station OSCA (Zululand)	 - 1 -	1 - - 1	1 1 1 -
Control Technician	Cedara		1	
Scientific Technician	Dundee	1	-	-
ASO	Cedara Kokstad OSCA	 1 1	1	 -
Tractor Drivers	Cedara Kokstad Dundee	1 1 1	- -	
Farm Drivers	Cedara Kokstad Dundee OSCA	1 1 1 1	-	-
Farm Aides	Cedara Kokstad Dundee OSCA	3 3 4 2	2 2 2 -	2 - - -
Additional to establishment – as per OSD dispensation for Scientists				
Candidate Scientist Candidate Technician	Relevant research station Relevant research station		1 1	

- Refer to a detailed breakdown of filled and vacant posts per Sub-directorate before the attached organograms.

9.2 Supply Chain Management:

- Problem of suppliers not being able to fulfil the orders they have quoted on after receiving the orders
- Fertilizer on contract not being delivered.
- Ensuring the item required (cultivar, equipment) is procured as required for research trials

10. Additional needs

10.1 Budget

- Budget to fill vital posts on the new structure and for overtime
- Additional working capital budget.
- Additional budget for capital items

10.2 Equipment & Machinery

- Sickle bar mowers to harvest research cutting trials
- Drying ovens
- Fertilizer spreaders, boom sprayers, rotary mowers(small)

10.3 Infrastructure

As per infrastructure maintenance plan for Directorate

- Additional storage capacity at Kokstad and OSCA
- Adequate fencing to protect trials from dogs, vermin and other roaming animals
- Irrigation for Cedara

Sub-directorate: Agricultural Research Farms - CEDARA

Financial year: 2018-2019

Alistair Kent

1. Introduction

Farm Services provide a service to research and other sections on Cedara. The services provided enable them to run research trials and perform other duties that are required. Some of these duties include land preparation, fertilization, planting and producing winter feed for animals for e.g. silage and hay.

Farm Services are also responsible to maintain the neatness of the research station to create a positive impression with the customers and general public that visit the farm.

2. Farm Information

Size of Farm: 1000 ha
GPS co-ordinates at the Farm Office: S29^{o} 30' 15 33
E30^{o} 16' 09 19

Main activities on the farm: Conduct agricultural research into crops and livestock production. Student training and demonstrations.

3. Customers and socio-economic impact

Research sections and other sections on Cedara are the main customers of Farm Services and include Animal Science, Grassland Science, Agronomy, Horticulture, Crop Protection, College, UKZN and the ARC. The work provided by Farm Services to the sections is important and enables them to conduct accurate research trials by rendering a complete service to them. In order to provide a service to sections, their cooperation and participation are extremely important and vital to ensure successful actions.

4. The focus of the Section is:

As per the research policy.

5. Staff Component

Refer to attached organogram Annexure 1.

6. Research Infrastructure

As per APP – Cedara Farm.

7. The role of Farm Services on Cedara in support of research is to:

- Offer and maintain infrastructure to support research programs
- Ensure that no production practices/chemicals will be applied that will compromise the integrity of the land for future research purposes
- Give practical effect to best farming practices
- Produce adequate quantities of feed to support livestock, especially in winter and during drought situations
- Facilitate annual land allocation meetings to identify sites to be used and to record land-use patterns for future reference.
- Land allocation proposals must be report to the Research Committee for ratification. Any changes whatsoever to allocated land must also be ratified by the Research Committee before such changes are affected
- Coordinate requirements and identify all land not required directly for registered research programs and make use of all unused land for production of winter feed where possible

- Develop and maintain a detailed data base indicating the physical boundaries of research trials and the treatments applied (plot plans). These plot plans must be supplied by the responsible researcher.

8. Budget allocation 2018/19:

Compensation of employees		R 11 153 000.00
Goods and Services		R 7 881 000.00
Payment for Capital Assets		R 3 836 000.00
Transfer & Subsidies		R 196 000.00
	TOTAL	**R 23 066 000.00**

9. Value for Money

- Maintaining the research and farm infrastructure as a departmental asset (as per transversal APP indicator)
- Provide sites for key research initiatives that need to be conducted under a "controlled" research environment, including programs such as grazing management studies, livestock research, testing of cultivars, disease control research and research that may be a risk to farming enterprises.
- Lead by example through the application of Good Scientific Agricultural Practices where appropriate. It should be noted that both positive and negative parameters form part of research procedures and outcomes.
- Become "hubs of expertise" in terms of serving agriculture in other appropriate areas (including those surrounding the Research Stations) e.g., to host training courses, farmer's days, visits by study groups, students, school groups and farmers.
- Allow for long term trials.
- Represent one of the many Bio-resource groups of the Province where practices applicable for the specific resource group can be demonstrated, researched and new initiatives developed.
- Render services to Research Directorates
- Supply feed to livestock sections.

10. Farm Service Deliverables

Responsibility 1: The management of Research Farm natural resources

Action	**Responsible person**	**Expected outcome**
Maintain field water run-off structures	I.B.Sikhakhane	Prevent soil erosion
Control invasive weeds	A.M.Shezi	Prevent spread of alien weeds
Veld block burning	A.M.Shezi / I.B.Sikhakhane	Maintain veld condition

Responsibility 2: The co-ordination of Research Farm activities

Action	**Responsible person**	**Expected outcome**
Burn firebreaks	A.M.Shezi / I.B.Sikhakhane	Fire prevention
Grow maize for silage 25 ha	L.C.Mshengu	850 tons silage
Grow maize for grain 45 ha	L.C.Mshengu	250 tons maize grain
Produce hay 25 ha	AM.Shezi	250 tons
Plant pastures for grazing	L.C.Mshengu	Grazing available

Annual Production/Activity Schedule:

Month	**Planned activity** (e.g, Plant silage maize)	**Duration** (e.g. two weeks)
March	• Hay making second cut, weather dependent. • Planting winter pastures for Dairy, Grassland Science, ARC and College • Start silage making.	Three weeks Two weeks Two Weeks
April	• Silage making • Complete winter pasture planting • Plant winter forage cereals and cover crops after silage making.	One week Two weeks One week
May	General maintenance	
June	General maintenance	
July	• Harvest maize grain once dry enough	Two weeks
August	• Complete maize harvest • Maintain field water run-off structures	Two weeks One week
September	• Apply herbicide to No-Till maize fields to kill winter weeds if required • Plant *E. teff* where required	One week One week
October	• Apply first herbicide to maize fields • Start No-Till maize planting after 15th October if there is enough soil moisture. • Apply first N top dress to hay fields if there is sufficient rain.	One week Two weeks One week
November	• Plant main crop maize • Plant soya beans for crop rotation, ± 5 ha • Make first hay cut at end of November weather dependant • Top dress hay fields after cutting.	Three weeks One week One week One week
December	• Make hay of any fields that remain • Start to apply post emergent herbicides • Top dress maize. • Plant forage sorghum in areas not suitable for maize silage, ± 6 ha	One week One week One week One week
January	• Complete maize top dress	One week One week

	• Post emergent herbicide • Apply first fungicide spray to maize	One week
February	• Apply second fungicide spray to maize • Cut hay second cut • Start land prep for pasture planting. • Plant *E.curvula*	One week Two weeks Two weeks
March	• Start silage making • Start winter pasture planting.	Two weeks Two weeks

Responsibility 3: The support for research and training purposes

Action	**Responsible person**	**Expected outcome**
Provide field machinery service to research and training	L.C.Mshengu	Tillage, planting, crop care and harvesting
Hold weekly farm meetings and annual land allocation meeting	A.J.Kent	Planned division and sharing of resources.
Mechanical workshop service	A.Gopicherran	Maintain farm machinery

Cedara Farm Services are assisting in the following number of research trials:

- Agricultural Crops Research Services = 20
- Agricultural Livestock Research Services = 9
- ARC GCI = 17
- ARC API = 11
- Dairy herd = 1
- Mushroom base = 1

Responsibility 4: The management of Research Farm Infrastructure

Action	**Responsible person**	**Expected outcome**
Maintain boundary Fence	I.B.Sikhakhane	Stock proof fences
Maintain road network	I.B.Sikhakhane	Serviceable roads
Maintain irrigation infrastructure	A.M.Shezi	Irrigation water available on demand by sections
Beautification of Cedara	I.B.Sikhakhane	Neat lawns and surrounds
Refuse removal	I.B.Sikhakhane	Clean and hygienic Station
Re-gravel student farm road to Twin dams & Broad Acres road	A.Kent	Serviceable roads
Replace pipeline E3 1000 metres and C2 to D1 660 metres	A.Kent, I.B. Sikhakhane	Irrigation water available on demand by sections

Dam repairs: Moolman spillway and Student Farm spillway	A.Kent, I.B. Sikhakhane	Dam's in safe working order

Responsibility 5: Execution of administrative and related functions for Research Farm services

Action	**Responsible person**	**Expected outcome**
Human resource functions	A.M.Ramkhelepe	Control records for personal, leave, overtime and EPMDS
Financial and general admin functions , including quotations for goods and services	Y.Ogilvie	Control budget and start SCM process, maintain data base
Stock control and	J.Kistasami	Control stock and assist with quotes
Transport Officers	Y.Ogilvie / M.Ramkhelepe	Control transport
HR workshops and courses	All Cedara Farm Services staff	Training on Leave, EPMDS, Gems updates and Employee Health and Wellness, Workshops on Labour Relations Policies
Networking: Royal show, No-Till, Fire Protection Association, Farmers Association, Farmers days, Intensive Growers Associations, etc.	A.Kent, I.B. Sikhakhane, A.M. Shezi, L.C Mshengu, A. Gopicherran	Creates awareness of new products and practices in the market place

11. Challenges

11.1 It will be a challenges to fill the vacant posts as summarized in the following table:

Post Title	**Salary level**	**No of posts on structure**	**No Vacant posts**	**% vacant posts**
Control Farm Manager	9	1	1	100
Senior Farm Manager	8	1	0	0
General Admin Clerk Production	5	3	0	0
Chief Artisan	OSD	1	**1**	100
Artisan	OSD	1	0	0
Farm Foreman	5	5	2	40
General Foreman	4	6	**6**	100
Driver / Operator	4	18	**9**	50
Farm Aid	3	45	**8**	18
General Worker	2	1	**1**	100
Cleaner	2	1	**1**	100

The following **critical posts** to be filled during this financial year.

- Chief Artisan 1 post
- Driver / Operator 9 posts
- Farm Aid 8 posts
- General worker 1 post
- Cleaner 1 post
- General Foremen 6 posts.

11.2 Supply Chain Management:

- Slow procurement of equipment and goods
- Slow procurement of Capital items
- No Agents' contract and SLA for repairs and maintenance of farm machinery and equipment.

11.3 Ageing machinery resulting in costly repairs and lost time.

- Limited budget to replace aged equipment.

11.4 Stray livestock from Khanya village illegally grazing on Research Farm.

- Proper fencing between Khanye Village and Cedara Research Station still delayed.

11.5 Training: Appropriate training for skills development required, such as machinery operation.

- Numerous vacant posts which makes it difficult to send staff on courses – the work needs to continue.

12. Additional needs

12.1 Budget

- Not sufficient funds to maintain infrastructure.

12.2 Equipment & Machinery needed

- 60 Kw 4 x 2 tractor (x1)
- 90 kw 4x4 tractor (1)
- Hay Tedder (x2)
- Brush cutters (x4)
- Lawn mowers (x2)

12.3 Infrastructure

As per infrastructure maintenance plan for the Chief Directorate.

12.4 Additional funding needed

As per additional budget request for Goods & Services

Appendixes:

I Staff organogram

Sub-directorate: Agricultural Research Farm - DUNDEE

Financial year: 2018-2019

Mynhardt Sadie

1. Introduction

Farm Services provide a service to research and other sections on Dundee Research Station. The services provided enable researchers to run research trials. These services include land preparation, fertilization, planting and producing winterfeed for animals for e.g. silage and hay. Farm Services are also responsible to maintain the neatness of the Research Station to create a positive impression with the customers and public that visits the farm.

2. Farm Information

Size of farm: 1 335.9ha

GPS co-ordinates farm office: S28º 08' 11 94
E30º 18' 54 47

Main activities on the farm:

Conduct agricultural research into crops and livestock production. Student training and demonstrations.

3. Customers and socio-economic impact

Research sections and other sections on Dundee Research Station are the main customers of Farm Services, which include Livestock Science, Grass & Forage Science, Agronomy and Horticulture. The work provided by Farm Services to the sections is important and enable them to conduct accurate research trials by rendering a complete service to them. In order to provide a service to these sections, their cooperation and participation are extremely important and vital to ensure successful actions.

4. The focus of the Section is:

As per Research Policy.

5. Staff Component

Refer to attached organogram – Appendix 1.

6. Research Infrastructure

As per APP - Dundee Research Station.

7. The role of Farm Services on Dundee Research Station in support of research is to:

- Offer and maintain infrastructure to support research programs
- Ensure that no production practices/chemicals will be applied that will compromise the integrity of the land for future research purposes
- Give practical effect to best farming practices
- Produce adequate quantities of feed to support livestock
- Facilitate annual land allocation meetings to identify and record land-use patterns for each planned trial. All land allocations to be reported to the Research Committee for ratification. Any changes whatsoever to allocated land must also be ratified by the Research Committee before such changes are affected
- Coordinate requirements and identify all land not required directly for registered research programs and make use of all unused land for production of winter feed where possible
- Develop and maintain a detailed database indicating the physical boundaries of research trials and the treatments applied (plot plans). The respective researches are to supply these trial plans.

8. Budget allocation 2018/19

Compensation of employees	R 6 270 000
Goods and Services	R 2 927 000
Payment for Buildings Fixed Structures	R 6 780 000
TOTAL	**R15 977 000**

9. Value for Money

- Maintaining the research and farm infrastructure as a departmental asset (as per transversal APP indicator)
- Provide sites for key research initiatives that need to be conducted “under a controlled” research environment including programs such as grazing management studies, livestock research, testing of cultivars, disease control research and research that may identify aspects posing a risk to farming enterprises.
- Lead by example through the application of Good Scientific Agricultural Practices where appropriate. It should be noted that both positive and negative parameters form part of research procedures and outcomes.
- Become “hubs of expertise” in terms of serving agriculture in other appropriate areas (including those surrounding the Research Stations) e.g., to host training courses, farmer’s days, visits by study groups, students, school groups and farmers.
- Allow for long term trials.
- Represent one of the different Bio-resource groups of the Province where practices applicable for the specific bio-resource group can be demonstrated, researched and new initiatives developed.
- Render service to Research Directorates
- Supply livestock feed to livestock sections.

10. FARM SERVICE DELIVERABLES

Responsibility 1: Ensure the management of natural resources

Action	Responsible person	Expected outcome
Maintain field run off structures	A.M. Sadie/ S.K. Mtshali	Prevent soil erosion
Control invasive weeds	A.M. Sadie/ S.K. Mtshali	Prevent spread of alien weeds
Veld block burning	A.M. Sadie/ S.K. Mtshali	Maintain veld condition

Responsibility 2: Co-ordinate farming activities

Action	Responsible person	Expected outcome
Burn Firebreaks 56 km	A.M. Sadie/ S.K. Mtshali	Fire prevention
Grow maize for grain 25 ha.	A.M. Sadie/ S.K. Mtshali	100 tons maize grain
Maize silage for animal winterfeed 10 ha.	A.M. Sadie/ S.K. Mtshali	200 tons silage

produce hay 40 ha	A.M. Sadie/ S.K. Mtshali	1000 bales
Plant pastures for grazing	A.M. Sadie/ S.K. Mtshali	Grazing available

Annual Production/Activity Schedule:

Month	**Planned activity** (e.g., plant silage maize)	**Duration** (e.g. two weeks)
March	Fertilize Eragrostis 40ha, (70-75 N) no later than 15 March Check all outstanding Request memos' and orders. Submitting invoices for payment.	Daily Daily
April	Cut & bale Eragrostis for last the time 40ha (5 – 10 % flowering stage) Mow/spray herbicides on 40 km tracer lines for firebreaks Checking supply and order seed, fertilizer, Herbicide & Pesticides for planting season	Daily Daily 1 week
May	Check firefighting equipment Burn 40km tracer lines for firebreaks Tractor and implement repairs	4 weeks
June	Burn firebreaks – 56km Combine 10 ha maize (13-13.5% DM) Tractor and implement repairs	Daily 1 week
July	Burn firebreaks – 56km Combine 15 ha maize (13-13.5% DM)	Daily 2 weeks
August	Road repair and maintenance 15 km Fencing maintenance 40 km	4 weeks Daily
September	Service planting equipment/ Implements Fencing maintenance 40 km	Daily Daily
October	Service planting equipment/ Implements Block burning, (10mm rain) 100ha Fertilize 40 ha Eragrostis	Daily 1 week 2 week
November	Spray maize lands – herbicide 25 ha Planting maize for grain production 25 ha	2 week Daily
December	Fertilize Eragrostis 40ha (70-75 N) Cut and bale Eragrostis 20 ha (5-10% flowering stage) Beautification of Dundee R/Station Planting maize for silage production 10 ha	2 weeks Daily Daily 2 weeks
January	Fertilize Eragrostis 40ha (70-75 N) Cut and bale Eragrostis 40 ha (5-10% flowering stage) Beautification of Dundee R/Station	1 week Daily Daily

February	Cut and bale Eragrostis 40 ha (5-10% flowering stage) Beautification of Dundee R/Station	 Daily

Responsibility 3: Support for research training purposes

Action	Responsible person	Expected outcome
Provide field machinery service to research	A.M. Sadie/ S.K. Mtshali	Tillage, planting, crop care and harvesting
Hold weekly farm meetings and annual land allocation meeting	A.M. Sadie/ S.K. Mtshali	Planned division and sharing of resources.
Mechanical workshop service	R.S. Mtshali	Maintain farm machinery

Dundee Farm Services are assisting in the following number of research trials:

- Agricultural Crops Research Services = 11
- Agricultural Livestock Research Services = 7

Responsibility 4: Management of Farm Infrastructure

Action	Responsible person	Expected outcome
Maintain boundary Fence 120 km	S.K. Mtshali	Stock proof fences
Maintain road network 25 km	S.K. Mtshali	Serviceable roads
Maintain irrigation infrastructure	S.K. Mtshali	Irrigation water available on demand by sections
Beautification of Dundee	S.K. Mtshali	Neat lawns and surrounds
Refuse removal	S.K. Mtshali	Clean and hygienic Station. Offices and 25 houses
Erect new fences G camps	S.K. Mtshali	**Stock proof fences**

Responsibility 5: Perform all administrative and related functions for farm services

Action	Responsible person	Expected outcome
Human resource functions	A.M. Sadie/ S.K. Mtshali	Control records for personal, leave, overtime and EPMDS
Financial and general admin functions	A.M. Sadie	Control budget and start SCM process, maintain data base
Stock control and quotations	A.M. Sadie/ B.F. Buthelizi	Control stock and assist with quotes
Transport Officers	B.F. Buthelizi	Control transport
HR workshops and courses	All Dundee Farm Services staff	Training on Leave, Epmds, Gems updates and Employee Health and Wellness, Workshops on Labour Relations Policies

Networking: NAMPO, No-Till, Fire Protection Associations, Farmers Association and Farmers days	A.M. Sadie	Creates awareness of new products and practices in the market place
Chairman station committee	A.M. Sadie	Weekly meetings

11. Challenges

11.1 Challenges will be to fill the vacant posts as summarized in the following table:

Post Title	Salary level	No of posts on structure	No Vacant posts	Percentage vacant posts
Control Farm Manager	9	1	0	0
General Admin Clerk Production	7	2	1	50
Artisan	OSD	1	1	100
Farm Foreman	5	1	0	0
General Foreman	4	2	0	0
Driver / Operator	4	7	3	43
Farm Aid	2	15	5	33
Cleaner	2	1	0	0

The following **critical posts** to be filled during this financial year are the following:

- Driver / Operator 3 posts
- Farm Aid 5 posts

11.2 Supply Chain Management

- Slow procurement of equipment and goods.

11.3 Ageing machinery resulting in costly repairs

- Insufficient budget to replace ageing equipment.

12. Additional Needs

12.1 Budget

- Not sufficient funds to maintain infrastructure

12.2 Equipment & machinery still needed:

- 60 kw 4x4 tractor (1)

12.3 Infrastructure

As per infrastructure plan for Chief Directorate

- Repair roofs/painting and hot water systems for 20 houses in Lindokuhle Village, planning in progess.
- Build new public toilet block for staff and visitors.
- Repair toilets at Farmers' Hall.

12.3.1 ADDITIONAL NEEDS

None

Appendixes

- Staff organogram

Sub-directorate: Agricultural Research Farms - KOKSTAD

Financial year: 2018-2019

S.V SHAMASE

1. Introduction

Farm Services provide a service to research and other sections at Kokstad Research Station. The services provided enable them to run research trials and perform other duties that are required. Some of these duties include land preparation, fertilization, planting and producing winterfeed for animals for e.g. silage and hay. Farm Services are also responsible to maintain the neatness of the research station to create a positive impression with the customers and general public that visits the farm.

2. Farm Information

Size of Farm: 1254 ha

GPS co-ordinates: S30º 31' 16 72
E29º 24' 30 38

Main activities on the farm: Conduct agricultural research into crops and livestock production and demonstrations.

3. Customers and socio-economic impact

Research sections and other sections at Kokstad Research Station are the main customers of Farm Services which include Animal Science, Grassland Science, Horticulture and Agronomy. The work provided by Farm Services to the sections is important and enable them to conduct accurate research trials by rendering a complete service to them. In order to provide a service to sections, their cooperation and participation are extremely important and vital to ensure successful actions.

4. The focus of the Section is:

As per Research Policy.

5. Staff Component

Refer to attached organogram

6. Research Infrastructure

As per APP – Kokstad Farm Services

7. The role of Farm Services on Kokstad in support of research is to:

- Offer and maintain infrastructure to support research programs
- Ensure that no production practices/chemicals will be applied that will compromise the integrity of the land for future research purposes
- Give practical effect to best farming practices
- Produce adequate quantities of feed to support livestock
- Facilitate annual land allocation meetings to identify and record land-use patterns for each following financial year and report back to the Research Committee for ratification. Any changes whatsoever to allocated land must also be ratified by the Research Committee before such changes are affected
- Coordinate requirements and identify all land not required directly for registered research programs and make use of all unused land for production of winter feed where possible
- Develop and maintain a detailed data base indicating the physical boundaries of research trials and the treatments applied (plot plans). Trial/plot plants to be provided by the relevant researcher.

8. Budget allocation 2018/19

Compensation of employees	R4 079 000
Goods and Services	R2 936 000
	TOTAL: R7 015 000

9. Value for Money

- Service to Research Directorates
- Feed to livestock sections
- Demonstration of best scientific agricultural practices
- Training – best practice available for training
- Maintaining the research and farm infrastructure as a departmental asset (as per transversal APP indicator)
- Provide sites for key research initiatives that need to be conducted "under a controlled" research environment including programmers such as grazing management studies, livestock research, testing of cultivars, disease control research and research that may be a risk to farming enterprises.
- Lead by example through the application of Good Agricultural Practices where appropriate. It should be noted that both positive and negative parameters form part of research procedures.
- Become "hubs of expertise "in terms of serving agriculture in other appropriate areas (including those surrounding the Research Stations) e.g., to host training courses, farmer's days, visits by study groups, students, school groups and farmers.
- Allow for long term trials.
- Represent the local Bio-resource group and implement practices applicable to the specific Bio-resource group. Demonstrate, research and identify new initiatives of production value.

10. Farm Service Deliverables

Responsibility 1: Ensure the management of natural resources

Action	Responsible person	Expected outcome
Maintain field run off structures	Shamase SV	Prevent soil erosion
Control invasive weeds	Shamase SV	Prevent spread of alien weeds
Veld block burning	Shamase SV	Maintain veld condition

Responsibility 2: Co-ordinate farming activities

Action	Responsible person	Expected outcome
Burn firebreaks 40 km	Shamase SV	Fire prevention
Grow maize for silage 14 ha	Shamase SV	200 tons silage
Grow maize for grain 34 ha	Shamase SV	120 tons maize grain
Produce hay 45 ha	Shamase SV	450 tons
Plant pastures for grazing 30 ha	Shamase SV	Grazing available

The co-ordination of Research Farm activities

Action	Responsible person	Expected outcome
Burn firebreaks	SV shamase	Fire prevention
Grow maize for silage 14 ha	SV Shamase	600 tons silage
Grow maize for grain 34 ha	SV Shamase	200 tons maize grain
Produce hay 28 ha	SV Shamase	1000 round bales
Plant pastures for grazing	SV Shamase	Grazing available

Annual Production/Activity Schedule:

Month	**Planned activity** (e.g., plant silage maize)	**Duration** (e.g. two weeks)
March	• Hay making second cut, weather dependent. • Planting winter pastures for Dairy, Grassland Science, ARC and College • Start silage making.	Three weeks Two weeks Two Weeks
April	• Spraying tracer lines • Silage making • Complete winter pasture planting • Plant winter forage cereals and cover crops after silage making.	One week Two weeks One week
May	• Road and fence maintenance • Burning tracer lines	Two weeks
June	• Making fire brakes • General maintenance	One month
July	• Harvest maize grain once dry enough	Four weeks
August	• Complete maize harvest • Maintain field water run-off structures	Two weeks One week
September	• Apply herbicide to No-Till maize fields to kill winter weeds if required • Plant *E. teff* where required	Two week One week
October	• Apply first herbicide to maize fields • Start No-Till maize planting after 15th October if there is enough soil moisture. • Top dressing to hay fields LAN if there is sufficient rain.	One week Two weeks One week
November	• Continue with planting main crop maize • Make first hay cut at end of November weather dependant • Top dress hay fields after cutting.	Three weeks One week One week
December	• Make hay of any fields that remain • Start to apply post emergent herbicides • Top dress maize.	One week One week One week
January	• Complete maize top dress • Post emergent herbicide	One week

	• Apply first fungicide spray to maize	One week One week
February	• Apply second fungicide spray to maize • Cut hay second cut • Start land prep for pasture planting. • Plant *E.curvula*	One week Two weeks Two weeks
March	• Start silage making • Start winter pasture planting.	Two weeks Two weeks

Responsibility 3: Support for research training purposes

Action	Responsible person	Expected outcome
Provide field machinery service to research and training	Shamase SV	Tillage, planting, crop care and harvesting
Hold weekly farm meetings and annual land allocation meeting	Shamase SV	Planned division and sharing of resources.
Mechanical workshop service	Gxoyiya MJ	Maintain farm machinery

Kokstad Farm Services are assisting in the following number of research trials:

- Agricultural Crops Research Services = 7
- Agricultural Livestock Research Services = 7

Responsibility 4: Management of Farm Infrastructure

Action	Responsible person	Expected outcome
Maintain boundary Fence 45 km	Shamase SV	Stock proof fences
Maintain road network 20 km	Shamase SV	Serviceable roads
Maintain irrigation infrastructure	Shamase SV	Irrigation water available on demand by sections
Beautification of Kokstad	Shamase SV	Neat lawns and surrounds
Refuse removal	Shamase SV	Clean and hygienic Station
Re-gravel farm roads 5 km	Mvundle J T	Serviceable roads
Replace asbestos pipes with PVC pipes 2km	Shamase SV	Irrigation water available on demand by sections
Cleaning and remove mud to all reservoirs in Kokstad	Shamase SV	Increase quality water supply

Responsibility 5: Perform all administrative and related functions for farm services

Action	Responsible person	Expected outcome
Human resource functions	MM De Kok	Control records for personal, leave, overtime and EPMDS
Financial and general admin functions	MM De Kok	Control budget and start SCM process, maintain data base
Stock control and quotations	MM De Kok	Control stock and assist with quotes
Transport Officers	MM De Kok	Control transport
HR workshops and courses	All Kokstad Farm Services staff	Training on Leave, EPMDS, Gems updates and Employee Health and Wellness, Workshops on Labour Relations Policies
Networking: NAMPO, No-Till, Fire protection, Farmers Association and Farmers days	SV Shamase	Creates awareness of new products and practices in the market place
Chairman station committee	S.V. Shamase	Weekly meetings

11. Challenges

11.1 A challenge will be to fill the vacant posts as summarized in the following table:

Post Title	Salary level	No of posts on structure	No vacant posts	Percentage vacant posts
Control Farm Manager	9	1	1	100
Artisan	OSD	1	1	100
Farm Foreman	5	1	1	100
Driver / Operator	4	6	3	50
Farm Aid	2	15	9	60
Cleaner	2	1	1	100

The following critical posts to be filled during this financial year are the following:

- Artisan 1 post
- Farm Forman 1
- Driver/operator 3 posts
- Farm Aids 9 posts
- Cleaner 1 post

11.2 Supply Chain Management

- Delays in receiving orders
- Capital orders not received

12. Additional needs

12.1 **Budget**

Not sufficient funds to maintain infrastructure

12.2 **Equipment & machinery required.**

- Silage harvester (single row)
- Water cart 500 – 600 liter (4)
- Silage trailers (3)
- Boom sprayer 12m- (1)
- Brush cutters 450 W (2)
- Stand by generators

12.3 **Infrastructure**

Village houses: 22 houses needs painting, attention to ceilings, roofs & foundation stabilizing.
Houses 1 & 2 need repairs to roofs, and attention to insides

Hay sheds roofs to be fixed
Electric pump at staff houses need to be repaired
Gates (6) at Animal Science camps need to be renovated or changed
Pump station to be renovated

Perimeter fence to be replaced

Internal fences of 40 km

All internal roads to be gravelled, rolled and drained

Upgrade irrigation system (pipes/valves)

Security lights to be erected around office complex

Various electrical repairs
Reservoirs (2) need to be repaired

Appendixes

- Staff organogram

Sub-directorate: Agricultural Research Farms - Makhathini

Financial year: 2018-2019

SIMON DE BEER

1. Introduction

Farm Services provide a service to research and other sections on Makhathini. The services provided enable them to run research trials and perform other duties that are required. Some of these duties include land preparation, fertilization and planting. Farm Services are also responsible to maintain the neatness of the research station to create a positive impression with the customers and general public that visits the farm.

2. Farm information

Size of farm: 200 ha clay and 200 ha sand

GPS Co-ordinates at the Farm Office: S27º 23ˡ 42 45
E32º 10ˡ 48 48

3. Customers and socio-economic impact

Research sections and other sections on Makhathini are the main customers of Farm Services and include Animal Science, Grassland Science, Agronomy, Horticulture, Crop Protection and the ARC. The work provided by Farm Services to the sections is important and enable them to conduct accurate research trials by rendering a complete service to them. In order to provide a service to sections, their cooperation and participation are extremely important and vital to ensure successful actions.

4. The focus of the Section is:

As per Research Policy.

5. Staff Component

Refer to attached organogram – Annexure I

6. Research Infrastructure

As per APP – Makhathini Research Station.

7. The role of Farm Services in support of research is to:

- Offer and maintain infrastructure to support research programs
- Ensure that no production practices/chemicals will be applied that will compromise the integrity of the land for future research purposes
- Give practical effect to best farming practices
- Produce adequate quantities of feed to support livestock
- Facilitate annual land allocation meetings to identify and record land-use patterns for each following financial year and report back to the Research Committee for ratification. Any changes whatsoever to allocated land must also be ratified by the Research Committee before such changes are affected
- Coordinate requirements and identify all land not required directly for registered research programs and make use of all unused land for production of winter feed where possible
- Develop and maintain a detailed data base indicating the physical boundaries of research trials and the treatments applied (plot plans). These trail plans are to be provided by the relevant researcher.

8. Budget allocation 2018/19

Compensation of employees		R7 794 000
Goods and Services		R4 195 000
	TOTAL	**R11 989 000**

9. Value for Money

- Maintaining the research and farm infrastructure of a departmental asset (as per transversal APP indicator)
- Provide sites for key research initiatives that need to be conducted “under a controlled” research environment including programs such as grazing management studies, livestock research, testing of cultivars, disease control research and research that may identify production risks to farming enterprises.
- Lead by example through the application of Good Scientific Agricultural Practices where appropriate. It should be noted that both positive and negative parameters form part of research procedures and results.
- Become “hubs of expertise” in terms of serving agriculture in other appropriate areas (including those surrounding the Research Stations) e.g. To host training courses, farmer’s days, visits by study groups, students, school groups and farmers.
- Allow for long term trials.
- Represent the different Bio-resource groups of the Province where practices applicable for the different resource groups can be demonstrated, researched and new initiatives developed.
- Service to Research Directorates
- Supply feed to livestock sections.

10. Farm Service Deliverables

Responsibility 1: The management of Research Farm natural resources

Action	**Responsible person**	**Expected outcome**
Maintain field run off structures	M.S. Nzuza	Prevent soil erosion
Control invasive weeds	M.S. Nzuza	Prevent spread of alien weeds

Responsibility 2: The co-ordination of Research Farm activities

Action	**Responsible person**	**Expected outcome**
Maintain vacant plots	M.S. Nzuza	Clean plots
Beautification of Makhathini	M.S. Nzuza	Neat lawns and surrounds
Refuse removal	M.S. Nzuza	Clean and hygienic station

Annual Production/Activity Schedule:

Month	**Planned activity** (e.g. Plant silage maize)	**Duration** (e.g. two weeks)
March	Land preparation – research trials (10 ha)	4 weeks
April	Land preparation – research trials (10 ha)	4 weeks
May	Maintenance	
June	Maintenance	
July	Maintenance	
August	Maintenance	
September	Land preparation – research trials (5 ha)	2 weeks
October	Slash centre pivot – Animal Science (20 ha)	2 weeks
November	Maintenance	
December	Maintenance	

January	Maintenance	
February	Maintenance	

Responsibility 3: The support for research/training purposes

Action	Responsible person	Expected outcome
Provide field machinery service to research	M.S. Nzuza	Tillage, planting, crop care and harvesting
Hold daily farm meetings	S.C. de Beer	Planned division and sharing of resources.
Mechanical workshop service	L.P. Gumede	Maintain farm machinery
Provide potable purified water	V.D. Gumede	Sufficient drinking water
Provision of irrigation water	V.D. Gumede	Sufficient irrigation water for 80 ha
Annual land allocation meetings (Spring and Autumn)	S.C. de Beer	Bi-annually

Makhathini Farm Services are assisting in the following number of research trials:

- Agricultural Crops Research Services = 6
- UKZN = 4
- ARC = 7
- Monsanto = 1
- United Seeds = 2

Responsibility 4: The management of Research Farm Infrastructure

Action	Responsible person	Expected outcome
Minor repairs to Research infrastructure: all buildings and structures	S.C. de Beer	Sound infrastructure
Road maintenance, 8 km	M.S. Nzuza	Serviceable roads
Maintain fences, 12 km	V.D. Gumede	Stock proof fences
Erect and maintain fence at pasture block 6km	V.D. Gumede	Security fence
Erect and maintain staff village perimeter fence	V.D. Gumede	Security fence
Erect new fence around the Sand farm	V.D. Gumede	Security fence
Repair three concrete reservoir dams	S.C. de Beer	Sufficient water storage
Maintain irrigation infrastructure, 60 km pipelines & upgrade pump station	S.C. de Beer / V.D. Gumede	Serviceable irrigation infrastructure
Upgrade workshop complex, roof	S.C. de Beer	Sound workshop
Beautification of Makhathini	M.S. Nzuza	Neat lawns and surrounds
Refuse/waste removal	M.S. Nzuza	Clean and hygienic station

Responsibility 5: Perform all administrative and related functions for Research Farm Services

Action	Responsible person	Expected outcome
Human resource functions	S.T. Nyawo	Control records for personal, leave, overtime and EPMDS

Financial and general admin functions	S.C. de Beer	Control budget and start SCM process, maintain data base
Stock control and assets	S.C. de Beer / D.N. Mkhize	Control stock and assets
Transport Officers	M.B. Mathenjwa	Control transport
HR meetings and courses coordination	All Makhathini Farm Staff	Training on leave, EPMDS, Gems updates and employee health and wellness, workshops on labour relations policies
Networking: NAMPO, No-Till and Farmers days	S.C. de Beer	Creates awareness of new products and practices in the market place
Chairman weekly Research Station Committee (RSC) meetings	S.C. de Beer	Weekly meetings

11. Challenges:

11.1 A challenge will be to fill the vacant posts as summarized in the following table:

Post Title	Salary level	No of posts as per structure	Vacant	Percentage vacant posts
Control Farm Manager	9	1		0
General Admin clerk production	5	2		0
Farm foreman	5	2		0
General Foreman	4	3		0
General worker	2	1	1	100
Artisan	OSD	1	1	100
Driver/ Operator	4	6	2	50
Farm Aid	3	21	4	5
Cleaner	2	1		0

The critical post to be filled during this financial year is the following:

- Driver/ operator 3 posts
- Farm Aid 4 posts
- General worker 1 post.

11.2 Supply Chain Management:

- Slow procurement of equipment and goods
- No appropriate contracts for farm machinery and equipment maintenance

11.3 Ageing machinery resulting in costly repairs.

Limited budget for timeous replacement.

11.4 Outdated irrigation infrastructure

Expensive to maintain and replace.

12. Additional needs

12.1 Budget

- Not sufficient funds to maintain the infrastructure (minor repairs).

12.2 Equipment & Machinery to be procured

- TLB.
- 1 x 60kw tractor
- Lawn mower (industrial).
- High pressure cleaner.
- Brush cutter.

12.3 Infrastructure

As per infrastructure plan for Chief Directorate

Appendixes

- Staff organogram

Sub-directorate: Agricultural Research Farms – BARTLOW COMBINE

Financial year: 2018-2019

Mkululeko Mngomezulu

1. Introduction

Farm Services provide a service to research and other sections on Bartlow Combine and other Research Stations. The services provided enable researchers to run research trials and perform other duties. Farm Services are also responsible to maintain the neatness of the Research Station to create a positive impression with the customers and general public that visits the farm.

2. Farm Information

Size of farm: 2 200ha

GPS co-ordinates of the Farm office: S27° 54' 36 63
E32° 03' 28 87

Main activities on the farm: Conservation and characterization of the on-farm Nguni cattle.

3. Customers and socio-economic impact

Research sections and other sections on Bartlow Combine are the main customers of Farm Services. The work provided by Farm Services to the Animal Science section is important and enable them to conduct accurate research trials by rendering a complete service to them. In order to provide a service to sections, their cooperation and participation are extremely important and vital to ensure successful execution of planned activities.

4. The focus of the Section is:

As per Research Policy.

5. Staff Component

Refer to attached organogram.

6. Research Infrastructure

As on Bartlow Combine Research Station.

7. The role of Farm Services on Bartlow Combine in support of research is to:

- Offer and maintain infrastructure to support research programs
- Ensure that no production practices/chemicals will be applied that will compromise the integrity of the land for future research purposes
- Give practical effect to best farming practices
- Produce adequate quantities of feed to support livestock, especially in winter and during drought situations
- Facilitate annual land allocation meetings to identify and record land-use patterns for each season. All land allocations need to be reported at the Research Committee meeting for ratification.
- Any changes whatsoever to allocated land must also be ratified by the Research Committee before such changes are affected
- Coordinate requirements and identify all land not required directly for registered research programs and make use of all unused land for production of winter feed where possible
- Develop and maintain a detailed data base indicating the physical boundaries of research trials and the treatments applied (plot plans). The research plans must be supplied by the relevant researcher.

8. Budget allocation 2018/19

Compensation of employees	R 3 643 000
Goods and Services	R 3 182 000
TOTAL	**R 6 825 000**

9. Value for Money

- Services rendered to Research Directorates
- Demonstration of best scientific agricultural practices
- Training – best practice available for training
- Maintaining the research and farm infrastructure as a departmental asset (as per transversal APP indicator)
- Provide sites for key research initiatives that need to be conducted under "a controlled research environment", including programs such as grazing management studies, livestock research, disease control research and research that may identify risk-causing aspects to livestock farming enterprises
- Lead by example through the application of Good Agricultural Practices where appropriate. It should be noted that both positive and negative parameters form part of research procedures and outcomes
- Become 'hubs of expertise' in terms of serving agriculture in other appropriate areas (including those surrounding the research stations) e.g., to host training courses, farmer's days, visits by study groups, students, school groups and farmers
- Allow for long term trials
- Represent one of the different bio-resource groups of the Province where practices applicable for the specific bio-resource group can be demonstrated, researched and new initiatives developed.

10. Farm Service Deliverables

Chief responsibility 1: Ensure the management of natural resources

Action	Responsible person	Expected outcome
Maintain field water run-off structures	M.W. Mngomezulu	Prevent soil erosion
Control invasive weeds	M.W. Mngomezulu	Prevent spread of alien weeds
Control bush encroachment	M.W. Mngomezulu	Sustain a clear view along boundary fence
Veld block burning	M.W. Mngomezulu	Maintain veld condition

Chief responsibility 2: Co-ordinate farming activities

Action	Responsible person	Expected outcome
Burn fire breaks	M.W. Mngomezulu	Fire prevention
Beautification of Bartlow Combine farm office area	M.W. Mngomezulu	Neat lawns and surrounds
Responsibly dispose unwanted waste	M.W. Mngomezulu	Clean and hygienic station

Chief responsibility 3: Support for research/training purposes

Action	Responsible person	Expected outcome

Provide field machinery service to research	M.W. Mngomezulu	Provide service to animal science
Hold weekly farm meetings	M.W. Mngomezulu	Planned division and sharing of resources.
Supply potable water to staff and office block	M.W. Mngomezulu	Sufficient drinking water
Provision of stock water to 288 animals	M.W. Mngomezulu	Sufficient drinking water

Bartlow Farm Services is assisting in the following research trial:

- Agricultural Livestock Research Services = 1

Chief responsibility 4: Management of Farm Infrastructure

Action	Responsible person	Expected outcome
Minor repairs to Research infrastructure: all buildings and structures	M.W. Mngomezulu	Sound infrastructure
Road maintenance 10 km	M.W. Mngomezulu	Serviceable roads
Maintain existing boundary fence 40 km	M.W. Mngomezulu	Stock proof fences
Erect new western boundary fence 9.6 km	M.W. Mngomezulu	Security fence
Maintain internal fences 20 km	M.W. Mngomezulu	Stock proof fences
Maintain 6 pumps and boreholes	M.W. Mngomezulu	Serviceable pumps
Upgrade/replace office fence	M.W. Mngomezulu	Security fence
Maintain pipe lines 30 km	M.W. Mngomezulu	Sufficient drinking water
Repair reservoir at senior staff houses	M.W. Mngomezulu	Serviceable reservoir

Chief responsibility 5: Perform all administrative & related functions on the farm

Action	Responsible person	Expected outcome
Human resource functions	S. Chonco	Control records for personal, leave, overtime and EPMDS
Financial and general admin functions	S. Chonco	Control budget and start SCM process, maintain data base
Stock control and assets	S. Chonco	Control stock and assets
Transport Officers	S. Chonco	Control transport
HR meetings and courses coordination	All Bartlow Farm Services Staff	Training on leave, Epmds, CIP, Gems updates and employee health and wellness, workshops on labour relations policies
Networking: NAMPO, No-Till, Farmers' days	M.W. Mngomezulu	Creates awareness of new products and practices in the market place

Monthly Community meetings	M.W. Mngomezulu	Maintain good relation with neighbours
Attend conferences and other events :NAMPO, Research Symposiums, No-Till conference , SASAS	M.W. Mngomezulu	Creates awareness of new products and practices in the market place

11 Challenges

11.1 Challenge will be to fill the vacant posts as summarized in the following table:

Post Title	Salary level	No of posts as per structure	Vacant	Percentage vacant posts
Farm manager	7	1	0	0
General Admin Clerk Production	5	1	0	0
Driver/operator	4	2	**1**	100
Farm Driver	3	1	**1**	30
Farm aid	2	15	**6**	60
Cleaner	2	1	**1**	100

The following **critical posts** to be filled during this financial year are the following:

- Driver/operator 1 posts
- Farm Driver 1 post
- Farm Aid 9 posts
- Cleaner 1

11.2 Supply Chain Management

- Slow procurement of equipment and goods
- No Agents' contract and SLA for farm machinery and equipment

11.3 Ageing machinery resulting in costly repairs

- Insufficient budget to replace ageing equipment.

12. Additional needs

12.1 Budget

- Not sufficient funds to maintain infrastructure (minor repairs)

12.2 Procure equipment & machinery:

- 60 Kw 4 x 2 tractor
- Water tank trailer
- Ripper
- Boom sprayer

12.3 Planned Infrastructure Projects

12.3.1 Refurbish staff housing and Office block

- In progress with Department of Works through Director: Asset Management

12.3.1 Additional needs

- Construct a new road on western portion of Bartlow Combine – 15 km
- Electrification of pump station at Mduna River and the pump next to the dip tank.
- Construct 2 new reservoirs of 100 000 liters each
- Drill 2 new boreholes at western portion with connection of pipe lines – 5 km
- Install 4 lightning conductors

- Repair of workshop roof.

Appendixes

- Staff organogram

Sub-directorate: Agricultural Research Farms - OSCA

Financial year: 2018-2019

Fancois du Toit

1. Introduction

Farm Services provide a service to research and other sections on OSCA. The services provided enable them to run research trials and for Farm staff to perform other duties that are required. Some of these duties include land preparation, fertilization, planting and producing winterfeed for animals for e.g. silage and hay. Farm Services are also responsible to maintain the neatness of the Research Station to create a positive impression with the customers and general public that visits the farm.

2. Farm Information

Size of farm 672 ha.

GPS co-ordinates at the Farm Office: GPS: S28° 38' 31.23
E31° 56' 08.04

Main activities on the farm: conduct agricultural research into crop and livestock production. Student training and demonstrations.

3. Customers and socio-economic impact

Research sections and other sections on OSCA are the main customers of Farm Services, which include Animal Science, Grassland Science, Agronomy, Horticulture, College, UniZulu, INR and ARC. The work provided by Farm Services to the sections is important and enable them to conduct accurate research trials by rendering a complete service to them. In order to provide a service to these sections, their cooperation and participation are extremely important and vital to ensure successful execution of planned activities.

4. The focus of the Section is:

As per Research Policy.

5. Staff Component

Refer to attached organogram – Annexure I.

6. Research Infrastructure

As per APP – OSCA Farm Services

7. The role of Farm Services on OSCA in support of research is to:

- Offer and maintain infrastructure to support research programs
- Ensure that no production practices/chemicals will be applied that will compromise the integrity of the land for future research purposes
- Give practical effect to best farming practices
- Produce adequate quantities of feed to support livestock
- Facilitate annual land allocation meetings to identify and record land-use patterns for each planned trial. All land allocations must be reported to the Research Committee for ratification. Any changes whatsoever to allocated land must also be ratified by the Research Committee before such changes are affected
- Coordinate requirements and identify all land not required directly for registered research programs and make use of all unused land for production of winter feed where possible
- Develop and maintain a detailed database indicating the physical boundaries of research trials and the treatments applied (plot plans). The respective researchers are to supply these trial plans.

8. Budget allocation 2018/19

Compensation of employees		R6 530 000 (3 934 000.00)
Goods and Services		R1 345 000.00
Payment for Capital Assets		R1 242 000.00
	TOTAL	**R 8 117 000 6 521 000.00**

(See detailed budget requirements)

9. Value for Money

- Maintaining the research and farm infrastructure as a departmental asset (as per transversal APP indicator)
- Provide sites for key research initiatives that need to be conducted "under a controlled" research environment including programs such as grazing management studies, livestock research, testing of cultivars, disease control research and research that may be a risk to farming enterprises.
- Lead by example through the application of Good Scientific Agricultural Practices where appropriate. It should be noted that both positive and negative parameters form part of research procedures.
- Become "hubs of expertise" in terms of serving agriculture in other appropriate areas (including those surrounding the Research Stations) e.g., to host training courses, farmer's days, visits by study groups, students, school groups and farmers.
- Allow for long term trials.
- Represent one of the different Bio-resource groups of the Province where practices applicable for the specific bio-resource group can be demonstrated, researched and new initiatives developed.
- Render services to Research Directorates
- Supply livestock feed to livestock sections.

10. Farm Service Deliverables

Responsibility 1: The management of Research natural resources

Action	Responsible person	Expected outcome
Maintain field run off structures	C.T. Ngidi	Prevent soil erosion
Control invasive weeds	C.T. Ngidi	Prevent spread of alien weeds
Veld block burning	C.T. Ngidi	Maintain veld condition

Responsibility 2: The co-ordination of Research Farm activities

Action	Responsible person	Expected outcome
Burn fire breaks	C.T. Ngidi	Fire prevention
Fodder production for goats 3 ha	J.F. du Toit /J.I. Gumbi	Supplementary fodder for 50 goat kids
Planted pastures for goats 4 ha	J.F. du Toit /J.I. Gumbi	Supplementary fodder for 75 pregnant goats
Manage all aspects of goat production	J.F. du Toit /J.I. Gumbi	Healthy and productive goat flock (125 goats)
Beautification of OSCA Research farm	C.T. Ngidi	Neat lawns and surrounds
Refuse removal	C.T. Ngidi	Clean and hygienic station

Annual Production/Activity Schedule:

Month	**Planned activity**	**Duration** (e.g. two weeks)
March	Plant crops winter feed for the goats	Two weeks
April	Goat sale	One week
May	Final steers competition, mini show and Royal show	4 Days
June	Fire breaks	Month
July	Fire breaks	Month
August	Land preparation: summer feed and trials	Two weeks
September	Plant summer feed crops	One week
October	Goat sale	One week
November	General maintenance	Ongoing
December	Step up security measures	Month
January	General maintenance	Ongoing
February	Land preparation: winter feed crops and trials Steers competition start	One week Until May 2019

Responsibility 3: The support for research training purposes

Action	**Responsible person**	**Expected outcome**
Provide field machinery service to research and training	CT Nigidi	Tillage, planting, crop care and harvesting
Hold weekly farm meetings	J.F. du Toit	Planned division and sharing of resources.
Mechanical workshop service	M.A. Mdletshe	Maintain farm machinery
Monitor potable water provision	J.I. Gumbi	Sufficient drinking water supplied by Mhlathuze water
Provision of irrigation water	J.I. Gumbi / P.Z. Nyawo	Sufficient irrigation water for 25 ha

OSCA Farm Services are assisting the following number of trials/demonstrations:

- Grass & Forage = 2
- Horticulture = 3
- Livestock Science Research Services = 1 (also assisting in the management of the flock)

Responsibility 4: The management of Research Farm Infrastructure

Action	**Responsible person**	**Expected outcome**
Minor repairs to research infrastructure: all buildings and structures	J.F. du Toit	Sound infrastructure
Road maintenance 15 km	C.T. Ngidi	Serviceable roads
Maintain fences 25 km	C.T. Nigidi	Stock proof fences
Erect new perimeter fence at Block A 4 km	C.T. Nigidi	Security fence
Erect new fence at goat paddocks and goat nursery 5 km	C.T. Ngidi	Stock proof fences

Erect new fence at Grass and forage Science Research block 3 km.	C.T. Ngidi	Stock proof fences
Maintain irrigation infrastructure 20 km pipelines and pump station	J.F. du Toit/J.I. Gumbi	Serviceable irrigation infrastructure
Beautification of OSCA	C.T. Ngidi	Neat lawns and surrounds
Refuse removal	C.T. Ngidi	Clean and hygienic station

Responsibility 5: Execution of administrative and related functions on the farm

Action	**Responsible person**	**Expected outcome**
Human resource functions	S.H. Dlamini	Control records for personal, leave, overtime and EPMDS
Financial and general admin functions	K. du Toit	Control budget and start SCM process, maintain data base
Stock control and assets	S.H. Dlamini / K. du Toit	Control stock and assets
Transport Officers	S.H. Dlamini / K. du Toit	Control transport
HR meetings and courses coordination	All OSCA Farm Staff	Training on leave, EMPDs, Gems updates and employee health and wellness, workshops on labour relations policies
Networking: NAMPO, No-till, Fire Protection Association, Farmers Association and Farmers days, Intensive Growers Association, Provincial Animal health forum Royal Agricultural Show IVG club (goats)	J.F. du Toit	Creates awareness of new products and practices in the market place
Attend conferences and other events :NAMPO, No-Till conference , SASAS, Research symposium	J.F. du Toit	Creates awareness of new products and practices in the market place
Chairman: Research Station Committee (RSC), farm meeting	J.F. du Toit	Weekly meetings

11. Challenges

11.1 Challenge will be to fill the vacant posts as summarized in the following table:

Post Title	**Salary level**	**No of posts as per structure**	**Vacant**	**Percentage vacant posts**
Control Farm Manager	9	1	0	0
General Admin clerk production	5	2	0	0
Artisan	OSD	1	1	100
Farm foreman	5	2	0	0
General Foreman	4	1	0	0

Post Title	Salary level	No of posts as per structure	Vacant	Percentage vacant posts
Driver/operator	4	5	2	40
Farm aid	2	16	9	56
General worker	2	4	3	75
Cleaner	2	1	1	100

The following **critical posts** to be filled during this financial year are the following (some posts have been vacant for 5 years):

- Driver/operator 2 posts
- Farm Aid 9 posts
- General worker 3 posts
- Cleaner 1 post

11.2 Supply Chain Management:

- Slow procurement of equipment and goods
- Slow procurement of Capital items
- Contract 55 G not in place.

11.3 Ageing machinery resulting in costly repairs

- Insufficient funding to replace ageing equipment.

11.4 Delay in selling goats

- Neighboring communities demand/interfering with sale arrangements.

11.5 Lack of security

- No permanent appointed security company
- Security arrangements not within Farm Services: OSCA's control.
- Dogs hunting/killing goats.

11.6 Uncertainty regarding future Departmental research initiatives at OSCA

- Future goat research not well defined.
- Very limited Departmental Crops research done at OSCA.

12. Additional needs

12.1 Budget

- Not sufficient funds to maintain infrastructure (minor repairs)

12.2 Equipment & machinery to be procured

- 60 Kw 4 x 2 tractor
- Post digger
- No-Till fine seed planter 1.2-2m
- 30 kW pump and motor (irrigation)
- Chisel plough
- Lap top computer
- 2 x desktop computers.

12.3 Infrastructure

As per infrastructure plan for Chief Directorate

12.3.1 Additional needs

Additional infrastructure requirements are:

- Offices for research staff

- Boardroom facility
- Field staff ablution block at Farm office
- Field staff ablution block at Block A
- Implement shed
- Chemical store room
- Equipment and tools store room
- Maintance of buildings

12.3.2 Additional Capital requirements

- 1 x 60kW tractor 4x4
- No Till maize planter
- Stand by generator
- Reversible plough

Appendixes

I Staff organogram