

College of Agriculture and Environmental Sciences

Research focus areas for 2022: Department of Agriculture and Animal Health

Focus area	Researchers in the focus area	Specialisation of researchers in the focus area	Profile of the researcher	Research project themes	Capacity per researcher for 2021
CHAIR OF DEPARTMENT					
Animal Breeding and genetics	Prof N. Mapholi maphon@unisa.ac.za	Livestock Genomics, Genetic Diversity and DNA Profiling	Prof Mapholi, Ntanganedzeni is a Chair of the Department of Agriculture and Animal Health. She obtained her PhD at the University of Stellenbosch. Her research focus is Genetics and Genomics.	<ol style="list-style-type: none"> 1. Animal breeding and genetics 2. Genomics applications including DNA profiling, GWAS analysis, DNA & RNA sequencing analysis, Population Genetics. 	Masters: 6 PhD: 5
ANIMAL SCIENCE					
Monogastric nutrition	Prof C.A Mbajjorgu mbajica@unisa.ac.za	Improving productivity of indigenous and exotic chickens	Prof Mbajjorgu is a full professor in the Department of Agriculture and Animal Health. He obtained his PhD at the University of Limpopo. His research focus is the use of non-conventional indigenous feed resources and Feed restriction methods including both quantitative	<ol style="list-style-type: none"> 1. Feed restriction methods 2. Optimization model 3. Non-conventional feed resources 	Masters: 6 PhD: 3

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			and qualitative methods and Skip a day feeding system in chickens. To this end, the aim was to develop, test, apply and adapt optimization models for the estimation/prediction of nutrient requirements of indigenous chickens under commercial production system in addition to investigating their contributions to household income of rural dwellers.		
Poultry Production	Dr B. L. Mogoje mogojbl@unisa.ac.za	Poultry production	Dr Barileng Leonard Mogoje is a senior lecturer in the Department of Agriculture and Animal Health. He holds a PhD from University of South Africa. His research focus is on poultry covering production management, breeding, nutrition and poultry business.	<ol style="list-style-type: none"> 1. Integrated poultry production management 2. Poultry breeding 3. Poultry nutrition 	Masters: 2 PhD: 0
Animal Nutrition	Prof Monnye Mabelebele	Utilisation of novel ingredients as food and feed	Prof Monnye Mabelebele is an Associate Professor in the Department of Agriculture and Animal Health. She obtained her PhD at the University of New England, Australia and a postdoc fellow at	<ol style="list-style-type: none"> 1. Metabolite profiles of possible feed and food ingredients for potential use in animal and human diets 	Masters: 2 PhD: 1

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			Newcastle University, in UK. Her research focus is on probable use of alternative food sources and their impact in animal and human nutrition.	<ol style="list-style-type: none"> 2. Health benefits associated with medicinal plants in livestock 3. Reproductive and digestive physiology of farm animals 4. Meat and egg quality parameters 5. Cost–benefit analysis of utilising novel feed ingredients 	
Animal Nutrition and reproductive physiology	Dr Amenda Sebola sebolan@unisa.ac.za	Animal Nutrition and reproductive physiology	Dr Amenda Sebola is a Senior Lecturer in the Department of Agriculture and Animal Health. She obtained her PhD at North West University. Her research interest is on Animal nutrition and reproductive physiology: focusing on finding alternative feed resources and their efficiency on fertility of livestock especially ethnomedicinal plants. Methodology expertise: Quantitative and Qualitative studies	<ol style="list-style-type: none"> 1. Animal Nutrition 2. Reproductive physiology 3. Ethnomedicinal plants 4. Food security 	Masters: 3 PhD: 2

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Animal Reproduction and physiology	Dr TR Netshirovha E-mail: netshttr@unisa.ac.za	Antioxidants and reproduction biology	Dr Thivhilaheli Richard is a lecturer in the Department of Agriculture and Animal Health. He holds a PhD degree from University of KwaZulu Natal. His research focus is on assisted reproduction technologies such as, oestrous synchronisation, artificial insemination, in vitro embryo production and gametes cryopreservation in animals to improve the genetic progress and conservation of valuable genetic material and understanding how specific antioxidants (as semen extender) and reproduction biology can improve livestock (cattle, goats, pigs, chicken and sheep) production following the use of assisted reproductive technologies.	<ol style="list-style-type: none"> 1. Semen collection in bulls, bucks, boars, cocks and rams and evaluation by Computer Assisted Sperm Analyzer (CASA) system 2. Synchronization, artificial insemination and pregnancy diagnosis in cattle, goats, pigs, chicken and sheep. 3. Research on <i>in vivo</i> & <i>in vitro</i> embryo production and cryopreservation/freezing of gametes (semen and embryos). 	Masters: 4 PhD: 0
Dairy production	Dr PM Moshidi moshipm@unisa.ac.za	Optimizing dairy production	Dr PM Moshidi is a senior lecturer in the Department of Agriculture and Animal Health. She is holding PhD from University of Fort Hare. Her research focus is on modulating	<ol style="list-style-type: none"> 1. Smallholder Livestock development: <ul style="list-style-type: none"> • Capacity development • Dairy infrastructure and business development 	Masters: 4

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			ruminal microbes, and their effects on fermentation and productivity in dairy cows.	<ul style="list-style-type: none"> • Dry-land and irrigation pasture establishment • Access to market • Dairy products <ol style="list-style-type: none"> 2. Replacement of antibiotics as feed additives in dairy production. 3. Modulating ruminal microbes, and their effects on fermentation and productivity in dairy cows. 	
Animal Breeding and genetics	Dr Petunia Malatji malatdp@unisa.ac.za	Livestock genomics, molecular biology and parasitology	Dr Petunia Malatji is a Senior Lecturer in the Department of Agriculture and Animal Health. She obtained her PhD at the University of Pretoria. Her research focus is on genomics and molecular biology.	<ol style="list-style-type: none"> 1. Animal-pathogen interaction 2. Genetic control in livestock 3. Molecular parasitology 	Masters: 2 PhD: 1

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Animal nutrition/genetics	Ms N Nemukondeni nemukn@unisa.ac.za	Animal nutrition/genetics	Ms Ndivho Nemukondeni is a lecturer in the Department of Agriculture and Animal Health. She holds an MSc Agriculture (Animal Science) from Unisa. Her research focus is in Animal nutrition and genetics (molecular)	1. Animal production, nutrition and reproduction/genetics	Masters: 1
Production Physiology	Dr Elsabe Janse van Rensburg dutoie@unisa.ac.za	Production physiology, specifically meat production for red meat.	Dr E Janse van Rensburg (PhD, M.Sc., B.Sc.) is a senior lecturer in the Department of Agriculture and Animal Health. She holds a PhD in Agricultural Animal Science from University of Pretoria. Methodology expertise: Quantitative & Qualitative studies	1. Production physiology: meat science	
ANIMALHEALTH					
Animal Nutrition/Animal Health	Dr BG Mokolopi E-mail: kgobebg@unisa.ac.za	Animal Nutrition/Minerals	Dr B Gloria is a Senior Lecturer in the Department of Agriculture and Animal Health. She obtained her PhD the North-West University. Her research focus is on Animal Nutrition related to minerals and animal health	1. Mineral status on the communal cattle depending on natural grazing 2. Effect of supplements on mineral status of cattle	Masters: 6 PhD: 4 (Capacity for 2020-2021)

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			Methodology expertise: Quantitative and Qualitative studies	3. Haematological and blood chemical indices on supplemented animals	
Microbiology/Infectious diseases/Phytomedicine	Dr PN Kayoka kabonpnk@unisa.ac.za	Zoonoses and others	Dr Kayoka is a senior lecturer in Animal Health with a PhD in Environmental Sciences focussing on Microbiology, epidemiology, and diagnosis of infectious diseases, zoonoses (Tuberculosis, brucellosis, and others), phytomedicine, antimicrobial resistance and drug development.	<ol style="list-style-type: none"> 1. Antimycobacterial activity of plants derived and chemical compounds/drug development 2. Antimicrobial resistance patterns of different micro-organisms 3. Epidemiology and diagnosis of infectious diseases 	
Animal Diseases - Brucellosis	Dr J Oosthuizen oostej@unisa.ac.za	Occurrence of Brucellosis in South Africa	Dr Johan Oosthuizen is a Senior Lecturer in Animal Health with a PhD in <i>Brucella Canis</i> and a Master's Degree in Environmental Sciences focussing on infectious Animal Disease like Brucellosis	<ol style="list-style-type: none"> 1. Prevalence and Risk factors associated with infectious diseases like <i>Brucella abortus</i> and <i>canis</i> within South Africa 2. Prevalence and risk factors for Avian tuberculosis 	Masters: 3 PhD 1
Veterinary Public Health/applied epidemiology	Prof J.W Oguttu joguttu@unisa.ac.za		Prof James W. Oguttu is a Professor in the Department of Agriculture and Animal Health. He holds a PhD from the University of Pretoria. His research focus is the epidemiology of food borne diseases and	<ol style="list-style-type: none"> 1. Epidemiology of Food borne diseases 2. Epidemiology of Antimicrobial drug resistance among human and animal isolates 	2 PhD

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			antimicrobial drug resistance in domestic animals and humans. He is also interested in application of epidemiological techniques to address problems of public health importance.	3. Application of epidemiological techniques and study designs to address public health problems	
Ethnoveterinary plants Anthelmintic drugs Isolation of compounds	Dr BM Sakong sakonbm@unisa.ac.za	Antimicrobial activity of ethnoveterinary plants, Isolation of compounds, helminth activity and ant-helminthic efficacy drugs	Dr Bellonah Sakong is a senior lecturer in the Department of Agriculture and Animal Health.	<i>In vitro</i> essays Isolation of compounds Anthelmintic and antimicrobial activities	MSc: 1
AGRICULTURAL ECONOMICS AND FOOD SECURITY					
Agricultural Economics, Climate change, Land reform & Food security	Prof MA Antwi antwima@unisa.ac.za	Analyses of production, agribusiness, land reform, marketing, food security, international trade, rural finance, climate change,	Prof MA Antwi is an Agricultural Economist (PhD Agric Economics, M.Sc. Agric Economics, master's in business administration MBA, B.Sc. (honours) Agric Economics). Methodology expertise: Quantitative and Qualitative studies	1. Achieving continuous improvement and innovation (ci & i) in freshwater aquaculture sector of South Africa 2. Interventions towards the transformation of small-	2022 MSc: 2 PhD: 2

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		<p>agricultural policy, socio-economic research & cooperatives research</p>		<p>holder farming to commercial farming.</p> <p>3. Vulnerability and Productivity Assessment of Climate Smart Agricultural Practices (CSAs) Adopted by Farmers in South African Maize and potato Based Cropping and livestock Systems.</p> <p>4. Competitiveness of the South African agricultural products/industry.</p> <p>5. Commercialisation of renewable energy using co-generation system among sugarcane growers in South Africa.</p> <p>6. Agricultural infrastructure and productivity of smallholder farmers in the South Africa.</p>	

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				<p>7. Access to markets and commercialisation among Land Reform/farmers in South Africa.</p> <p>8. Impact of land reform sub-programme / projects.</p> <p>9. Precision agriculture: assessment of its adoption amongst smallholder farmers in Gauteng province, South Africa.</p>	
Food Security	Dr M Masekoameng masekmr@unisa.ac.za	Food security. Household food and nutrition security	Mosima Masekoameng is a senior lecturer in the Department of Agriculture and Animal Health with a Masters in Agricultural Extension and a PhD in Rural Development from the University of Venda.	The impact of climate change on food security of small -holder and emerging farmers in South Africa. 1. The contribution of urban agriculture to food security.	Masters: 1
Food security	Dr TP Mbombo-Dweba		Dr TP Mbombo-Dweba is a lecturer in the Department of Agriculture and Animal Health. She holds a PhD from Unisa. Her research focus is on Household Food Security through food-based strategies.	<p>1. Indigenous/ traditional vegetables and fruit.</p> <p>2. Ethnic foods</p> <p>2. Food safety challenges at informal markets</p>	Masters 3 PhD: 1

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Agricultural Economics and value adding	Ms D Mthombeni mthomdl@unisa.ac.za	Agricultural Marketing and Agribusiness Management	Ms D Mthombeni is a lecturer in the Department of Agriculture and Animal Health. She holds an MSc in agriculture from UNISA. Currently studying PhD in Agriculture at UNISA. Methodology expertise: Quantitative & Qualitative studies.	3. Agricultural Marketing (including informal marketing) and agro-processing.	MSc: 2
Agricultural Economics	Dr SS Tekana tekanss@unisa.ac.za	Socio-economic, climate change and food security research	Dr SS Tekana (PhD, M.Sc., B.Sc. (honours)) is a senior lecturer in the Department of Agriculture and Animal Health. Methodology expertise: Quantitative & Qualitative studies	Market participation of smallholder farmers in the agricultural value chain. Sustainable land management practices for food security Women empowerment in the agricultural sector to improve household food security and nutrition. Impact of land reform sub programmes/project	MSc: 5 PhD: 3

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				<p>Interventions of grain producers' organizations on the productivity of smallholder agricultural producers</p> <p>Adoption of agroforestry practices and climate change mitigation strategies amongst smallholder farmers</p>	
Agricultural Economics	Dr A Tagwi tagwia@unisa.ac.za	International trade, cooperatives, value chain analyses, land reform, climate change, rural finance and agribusiness.	<p>Dr A Tagwi (PhD, M.Sc., B.Sc.) is a senior lecturer in the Department of Agriculture and Animal Health. She holds a PhD in Agricultural Economics from University of Venda.</p> <p>Methodology expertise: Quantitative & Qualitative studies</p>	<ol style="list-style-type: none"> 1. Interventions towards the transformation of small-holder farming to commercial farming. 2. Commercialisation of renewable energy using co-generation system among sugarcane growers in South Africa. 3. Impact of land reform programme / projects 4. Risk analyses of sheep farming 	MSc: 3 PhD: 3

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				5. Informal traders' knowledge and compliance level in fruit and vegetables sanitary and phytosanitary measures	
Agricultural Economics, and Agribusiness management	Ms F.P. Tshilowa tshilpf@unisa.ac.za	Agricultural Marketing, socio-economics and Agribusiness Management aspects	Ms F.P. Tshilowa is a lecturer in the Department of Agriculture and Animal Health. She holds an MSc in agriculture from UNISA. Currently studying PhD in Agriculture at UNISA. Methodology expertise: Quantitative & Qualitative studies.	1. Agricultural Marketing and agro-processing.	MSc: 2
PLANT SCIENCE					
Indigenous crops research Contact Person Prof G Prinsloo prinsg@unisa.ac.za	Prof G Prinsloo E-mail: prinsg@unisa.ac.za Dr N Nogemane E-mail: nogemn@unisa.ac.za Dr L Nemadodzi nemadle@unisa.ac.za	Propagation and cultivation of indigenous crops and the effects on their chemical profile and biological activity	Prof Gerhard Prinsloo is a professor in the Department of Agriculture and Animal Health. He holds a PhD from the University of Pretoria. His research focus is on quality assessment of indigenous plants and identification of important secondary metabolites.	2. Propagation of indigenous crops with commercial potential 3. Determine the effects of cultivation on the yield and chemical profile and biological activity 4. Identify the important secondary metabolites as affected by these methodologies	Masters: 10 PhD: 10

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	Dr K Mohale mohalkc@unisa.ac.za		<p>Dr Nemadodzi is a Senior Lecturer in the Department of Agriculture and Animal Health. She holds a PhD from UNISA. Her research focus is propagation and cultivation of medicinal plants and assessment of soil and soil organisms on the chemical profiles and biological activity of the plants.</p> <p>Dr Nemadodzi is a lecturer in the Department of Agriculture and Animal Health. She holds a PhD from UNISA. Her research focus is propagation and cultivation of medicinal plants and assessment of soil and soil organisms on the chemical profiles and biological activity of the plants.</p>	<p>5. Identification of compounds with beneficial or adverse effects</p> <p>6. Determine the effect of soil and soil organisms on plant survival and establishment</p>	
	Prof G Prinsloo E-mail: prinsg@unisa.ac.za Dr Noluyolo Nogemane nogemn@unisa.ac.za Dr L Nemadodzi nemadle@unisa.ac.za	Plant metabolomics	Prof Gerhard Prinsloo is a professor in the Department of Agriculture and Animal Health. He holds a PhD from the University of Pretoria. His research focus is on quality assessment of cultivated plants and	1. Identify changes in the chemical profile and biological activity of plants due to environmental or other external factors	Masters: 3 PhD: 3

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			<p>identification of important secondary metabolites.</p> <p>Dr Noluyolo Nogemane is a senior lecturer in the Department of Agriculture and Animal Health. She holds a PhD from UNISA. Her research focus is propagation and cultivation of medicinal plants and assessment of these effects on the chemical profiles of the plants.</p> <p>Dr Nemadodzi is a lecturer in the Department of Agriculture and Animal Health. She holds a PhD from UNISA. Her research focus is propagation and cultivation of medicinal plants and assessment of soil and soil organisms on the chemical profiles and biological activity of the plants.</p>	<ol style="list-style-type: none"> 2. Identification of compounds affected by environmental or other external factors 3. Identification of compounds with beneficial or adverse effects 4. Identification of compounds in soil that affects growth and soil organisms 	

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Legumes crops	Dr K Mohale E-mail: mohalkc@unisa.ac.za	Agronomy, Plant metabolomics, Grain legume crop Nitrogen fixation	Dr Keletso Mohale is a senior lecturer in the Department of Agriculture and Animal Health. She holds a PhD from UNISA. Her research focus is assessment of co-inoculation, biostimulants, and biofertilizer application on different grain legume crops.	<ol style="list-style-type: none"> 1. Metabolomics and nitrogen fixation on different grain legume crops 2. Inoculation (rhizobial and plant growth promoting rhizobacteria) 3. Biostimulant application (organic) 4. Sustainable agronomic practices 	Masters: 7 PhD: 2
Indigenous crops research & Commercial Crops	Mrs. M.P Kutumela	Indigenous crops research: Propagation and cultivation of indigenous crops and the effects on their chemical profile and biological activity Commercial Crops: Vegetables, Plant Nutrition	Mrs. Kutumela is a lecturer in the Department of Agriculture and Animal Health. She holds a MSc (Cum Laude) from UNISA. Her research focus is propagation, cultivation and plant nutrition of medicinal plants and vegetables, and assessment on the physiological responses, chemical profiles and biological activity of the plants.	<ol style="list-style-type: none"> 1. Propagation and cultivation of vegetables and indigenous crops with commercial potential 2. Determine the effects of plant nutrition and cultivation on the yield and chemical profile and biological activity 3. Identify the important secondary metabolites as affected by these methodologies 4. Identification of compounds with beneficial or adverse effects 	

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Plant-microbes interactions Contact Person Prof K Ntushelo ntushk@unisa.ac.za	Prof K Ntushelo E-mail: ntushk@unisa.ac.za	Molecular profiling of plants interacting with microbes especially microbial pathogens	Prof Khayaletu Ntushelo is an associate professor in the Department of Agriculture and Animal Health. He holds a PhD from the University of Florida. His research focus is on genetic and metabolite profiling of plants interacting with microbes especially pathogens.	<ol style="list-style-type: none"> 1. Gene expression profiling of crops under pathogen attack. 2. Metabolite profiles of crops under pathogen attack 3. Investigating the role of plant hormones in lessening disease effects 	Masters: 0 PhD: 1
Commercial Crops Contact Person	Dr S Figlan figlas@unia.ac.za	Commercial crops: Fruits, Vegetables and Field crops	Dr S Figlan focuses on plant breeding and genetic improvement of plants.	<ol style="list-style-type: none"> 1. Propagation and cultivation of fruits and vegetables 2. Genetic improvement of commercial crops 	Masters: 2 PhD: 2