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		Issue No.	01
		Effective Date	01.08.2022

SECTION A: QUALIFICATION DETAILS														
QUALIFICATION DEVELOPER (S)		BA ISAGO University												
TITLE	Bachelor of Agriculture										NCQF LEVEL	7		
STRANDS (where applicable)	Not applicable													
FIELD	Agriculture and Nature Conservation				SUB-FIELD	Agriculture				CREDIT VALUE	481			
New Qualification					✓		Legacy Qualification							
SUB-FRAMEWORK		General Education					TVET					Higher Education		✓
QUALIFICATION TYPE	Certificate	I	II	III	IV	V	Diploma	Bachel or	✓					
	Bachelor Honours			Post Graduate Certificate				Post Graduate Diploma						
	Masters					Doctorate/ PhD								
RATIONALE AND PURPOSE OF THE QUALIFICATION														
RATIONALE: <p>In Botswana, agriculture continues to play a very significant role in the production of food and creation of employment opportunities. The Agricultural sector also has potential to contribute to government revenue generation, through export earnings. According to the Botswana Agriculture Sector Policy Brief (2012), the major challenges facing the agricultural sector include low production volumes, production inefficiency, lack of infrastructure, lack of support services and under-utilized agricultural land. However, despite these challenges the government through the Ministry of Agricultural Development and Food Security seeks to improve and</p>														

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develop the agricultural sector through different policy reforms.

According to Vision 2036 (2016), Pillar 1 on Sustainable Economic Development, Botswana aims for a sustainable, technology-driven and commercially viable agricultural sector through optimum use of land and modern farming methods to improve productivity. Furthermore, the vision intends to develop a private sector led value chains in the agricultural sector including production, processing, and distribution activities. Additionally, the agricultural industry in Botswana is earmarked as a major sector in terms of meeting the ever-increasing food demands, employment, and adding value to linkages with other sectors in the economy. (Agriculture and Food Security Policy Brief, UNDP, 2012).

The need to develop the agricultural sector is also supported by the National Development Plan (NDP 11, 2016), which intends to adopt “smart agriculture”, as an approach to help the country transform towards more productive, efficient, resilient and sustainable agricultural systems. These envisaged plans require training and development in the field of agriculture to equip the citizens with the occupational skills required to grow and develop the sector at a commercial level.

According to the Human Research Development Council’s, ‘Top Occupations in High Demands report’ (2016:10) there is need for skills training and development in agriculture based on the sub-sectors contribution to the gross domestic product (GDP), employment, exports, import reduction and prospective growth. The report identifies occupations such as animal scientists, horticulture production specialist, farm managers, agronomists and breeders as some of the top occupations in high demand.

With the high unemployment rate, agriculture remains a viable option for employment creation since it is labour intensive. As a result, the proposed qualification intends to develop an entrepreneurship spirit amongst the Botswana youth to establish agricultural enterprises that will grow the agro-based industries and stimulate the overall development process of the country’s economy. This qualification will establish a strong foundation of applied agriculture and a sound grounding on the sciences of animals, agronomy and horticulture production systems.

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PURPOSE:

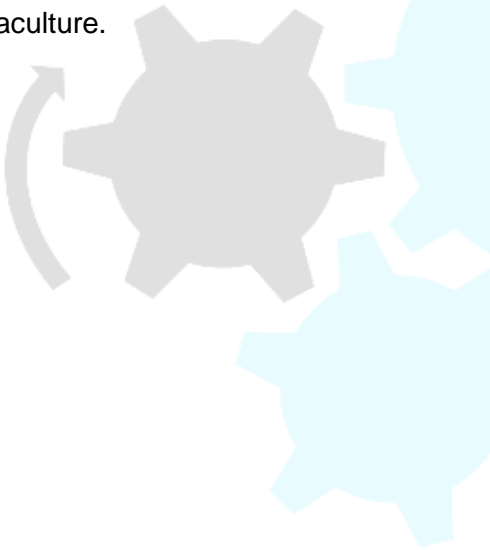
The purpose of this qualification is to produce graduates with specialized knowledge, skills and competences to:


- i. Solve current challenges in the agricultural sector through the development of sustainable production systems in order to provide food security for Botswana and other southern African countries.
- ii. Operate holistic agricultural businesses as primary producers in the value chain including the production and management of livestock and crops.
- iii. Integrate contemporary and modern technology into agricultural settings to formulate strategic solution of real-life problems facing the industry, particularly the small scale and commercial farming sector.
- iv. Identify diseases and constraints to animal health and crop diseases to formulate and apply appropriate measures towards optimal animal and plant health and biosecurity
- v. Apply the principles of sustainable natural and physical resources in sustaining regenerative livestock and crop production
- vi. Plan, evaluate, and implement sound principles of strategic and financial management and record-keeping systems in agricultural enterprises

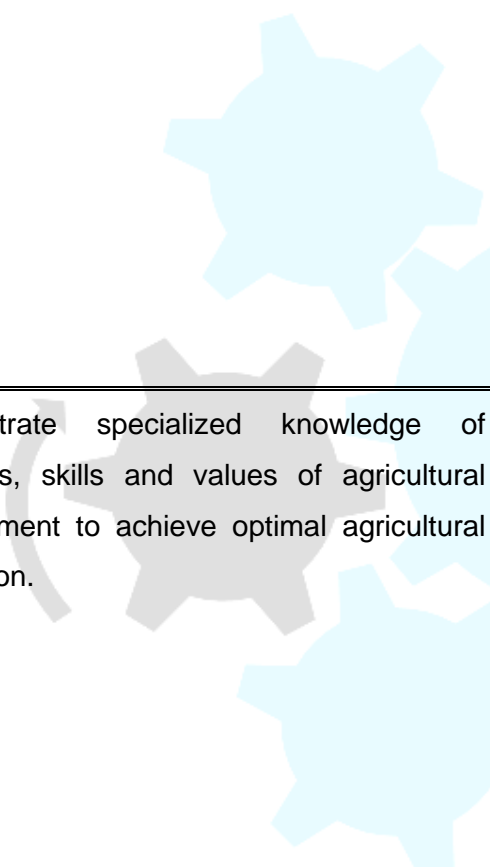
MINIMUM ENTRY REQUIREMENTS (including access and inclusion)


- i. Candidates must have obtained a certificate IV, NCQF level 4 (General Education or TVET).
- OR
- ii. Applicants who do not meet the requirements above may be considered through RPL and CAT policies for access and inclusion as per BQA/ national policy.

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SECTION B		QUALIFICATION SPECIFICATION	
GRADUATE PROFILE (LEARNING OUTCOMES)		ASSESSMENT CRITERIA	
<p>1. Implement sustainable agricultural processes and practices to produce animal products in relation to small stock, large stock, dairy production, pig production, poultry production and aquaculture.</p> 		<p>1.1 Select breeding types of animals in a livestock production unit.</p> <p>1.2 Apply safe handling procedures to manage damage control in animals and victims.</p> <p>1.3 Breed and produce animals in a commercial production unit.</p> <p>1.4 Administer livestock processing treatments in a production unit within a sound biosecurity system.</p> <p>1.5 Apply scientific animal nutrition principles in the composition of balanced animal rations for maintenance and production feeding processes.</p> <p>1.6 Administer abattoir slaughtering processes within applicable environmental and occupational health regulations.</p> <p>1.7 Apply probation management principles in a livestock production environment to prevent stock losses, whilst also enhancing the natural ecosystem.</p>	
<p>2. Produce sustainable crops including grains, vegetables, tropical and subtropical fruits</p>		<p>2.1 Implement soil fertility and plant nutrition practices towards optimum crop production.</p> <p>2.2 Breed plants according to scientific and practical principles in a cropping system</p> <p>2.3 Develop plant manipulation methods to increase crop development and performance</p> <p>2.4 Control plant pests, diseases and weeds in an effective and responsible integrated management programme.</p>	


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		<p>2.5 Develop an effective harvesting plan for the specific agricultural crops.</p> <p>2.6 Manage crops and horticultural products according to post-harvest and safe food processing procedures.</p> <p>2.7 Implement a permaculture production system to produce fresh household food.</p> <p>2.8 Maintain a crop production system within environmental and conservational principles of agri-eco tourism.</p>
	<p>3. Demonstrate specialized knowledge of principles, skills and values of agricultural management to achieve optimal agricultural production.</p>	<p>3.1 Analyze the agricultural market for a range of products to develop a competitive farming operation.</p> <p>3.2 Establish an operational farming business system according to objectives, ethics and common goals, within an understanding of the specific organizational politics.</p> <p>3.3 Procure input, purchase, store and control stock levels within a farm operational system.</p> <p>3.4 Implement human resource and labour relations policies and acts in a farm operation.</p> <p>3.5 Maintain farm records of animals and crop production enterprises.</p> <p>3.6 Operate a commercial production unit within an operational plan.</p> <p>3.7 Interpret financial statements and physical records in an agri-business.</p> <p>3.8 Comply with food safety and quality management system in an agricultural supply chain.</p>
	<p>4. Apply the scientific principles of grazing and pasture science to utilize natural grazing plants and produce fodder as animal feed in a</p>	<p>4.1 Apply the ecological principles of conservation in an ecological animal production unit.</p> <p>4.2 Observe plant succession, evaluation and natural</p>


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<p>sustainable production unit, whilst improving the natural land and plant resources.</p>	<p>grazing types to obtain optimal production of fodder.</p> <p>4.3 Assess the natural grazing condition of grassland to calculate carrying capacity as part of a selective grazing system for ruminants.</p> <p>4.4 Monitor and measure the growth rate and production potential of different plant species in a homogeneous ecological unit.</p> <p>4.5 Establish pastures to produce quality herbage as fodder for ruminants.</p> <p>4.6 Apply the principles of grassland management systems in an ecological ruminant production unit.</p> <p>4.7 Promote natural plant resilience through the establishment of drought resistant crops</p>
<p>5. Adapt agricultural engineering technology to develop, maintain and modernize farming for sustainable economic development.</p>	<p>5.1 Apply Information Computer Technology as to improve and support agricultural operations.</p> <p>5.2 Solve agricultural problems using the technological process and relevant scientific principles of mathematics, chemistry and physics</p> <p>5.3 Implement safety rules and regulations applicable within the agricultural environment, according to the Occupational, Health and Safety (OHS) Act.</p> <p>5.4 Apply mechanization principles towards the use of machinery, equipment and systems.</p> <p>5.5 Construct and maintain agricultural buildings and structures.</p> <p>5.6 Utilize alternative energy resources to support agricultural establishments.</p>


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SECTION C		QUALIFICATION STRUCTURE					
COMPONENT	TITLE	Credits Per Relevant NCQF Level					Total Credits
			Level [5]	Level [6]	Level [7]	Level [8]	
FUNDAMENTAL COMPONENT Subjects/ Courses/ Modules/Units	Communication		10				10
	Basic Computer Skills		10				10
	Fundamental Mathematics		10				10
	Statistics			10			10
	Research Methodology				12		12
CORE COMPONENT Subjects/Courses/ Modules/Units	Introduction to Agricultural Management			12			12
	Introduction to Animal Production			12			12
	Introduction to Agronomy and Horticulture			12			12
	Natural Resource Management			12			12
	Introduction to Agricultural				12		12

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	Engineering Technology					
	Agricultural Management I				20	20
	Animal Biology				12	12
	Plant Biology				12	12
	Animal Production I				20	20
	Agricultural Engineering Technology I				15	15
	Agronomy and Horticulture I				20	20
	Analytic Chemistry				12	12
	Organic Chemistry				12	12
	Physics				12	12
	Agricultural Management II				24	24
	Animal Production II				24	24
	Agronomy and Horticulture II				24	24
	Grazing and Pasture Science				12	12
	Animal Anatomy and Physiology				12	12
	Plant Anatomy and				12	12

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	Physiology						
	Agricultural Management III					24	24
	Farm Business Planning Dissertation				24		24
	Animal Genetics				15		15
	Plant Genetics				15		15
Electives	<i>Subjects/ Courses/ Modules/Units</i>	Credits Per Relevant NCQF Level					Total Credits
		Level [4]	Level [5]	Level [6]	Level [7]	Level [8]	
1. Animal Production (Choose 2)	Classification of Wool Fibre				8		8
	Operate and Manage a Feedlot				8		8
	Rearing of Pullets				8		8
	Brooding of Poultry Parent Stock				8		8
	Artificial Insemination				8		8
	Probation Management				8		8
	Animal Feed Manufacturing Processes				8		8

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2. Agronomy and Horticulture (Choose 2)	Abattoir Slaughtering Processes				8		8
	Aquaculture Production				8		8
	Pecan and Macadamia Production and Processing				8		8
	Grain Processing and Milling				8		8
	Beans Grading				8		8
	Maize Grading				8		8
	Management of Hydroponic Production Unit				8		8
	Citrus Production and Processing				8		8
	Viticulture Production and Processing				8		8
3. Agricultural Management (Choose 2)	Agrochemical Product Representative				8		8
	Local and International Trade in Agriculture				8		8
	Game and Wildlife Management				8		8
	Agri-Eco Tourism Management				8		8

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	Agri-Trade and Retail Services			8		8
	Animal Health Product Representative			8		8
	Agrochemical Product Representative			8		8
	Local and International Trade in Agriculture			8		8
	Game and Wildlife Management			8		8
	Agri-Eco Tourism Management			8		8

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SUMMARY OF CREDIT DISTRIBUTION FOR EACH COMPONENT PER NCQF LEVEL	
TOTAL CREDITS PER NCQF LEVEL	
NCQF Level	Credit Value
5	30
6	48
7	379
8	24
TOTAL CREDITS	481
Rules of Combination: (Please Indicate combinations for the different constituent components of the qualification)	
<p>For award of this qualification, candidates should have attained 481 credits, where the credit combination is made up of 52 credits from the fundamental component, 381credits from the core component and the remaining 48 credits from electives component, where candidates must choose any combination of 6 elective modules, 2 from the Animal Production, 2 from Agronomy and Horticultural Production and 2 from Agricultural Management.</p>	

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ASSESSMENT ARRANGEMENTS

All assessments which are leading to the award of the qualification should be based on learning outcomes and associated assessment criteria. Assessment will be conducted by Assessors who have been registered with Botswana Qualifications Authority (BQA). The assessments will be as follows:

Formative assessment

The weighting of formative assessment is 60 % of the Final assessment mark.

Summative assessment

The weighting of summative assessment is 40 % of the Final assessment mark.

MODERATION ARRANGEMENTS

There will be provision for internal and external moderation, conducted by Moderators registered with Botswana Qualifications Authority (BQA).

RECOGNITION OF PRIOR LEARNING

Recognition of Prior Learning (RPL) will be applicable for consideration for award in this qualification.

CREDIT ACCUMULATION AND TRANSFER

Credit Accumulation Transfer (CAT) will be applicable for consideration for award in this qualification.


PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)

Horizontal articulation: (NCQF Level 7)

- Bachelor of Agriculture in Animal Production
- Bachelor of Agriculture in Crop Production

Vertical articulation: (NCQF Level 8)

- Bachelor's Degree Honours in Agricultural Extension
- Bachelor's Degree Honours in Animal production
- Bachelor's Degree in Agronomy and Horticulture

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Employment pathways

- Technical Sales Advisor
- Farm Manager
- Agricultural Field Technician
- Primary Crop Producer
- Primary Livestock Producer
- Agricultural Sales Representative

QUALIFICATION AWARD AND CERTIFICATION


Candidates meeting the prescribed requirements will be awarded the qualification in accordance with the qualification composition rules and applicable policies. To be eligible for the award of the Bachelor of Agriculture, candidates should have obtained a minimum of 481 credits. A certificate will be issued to learners who are awarded the qualification.

SUMMARY OF REGIONAL AND INTERNATIONAL COMPARABILITY

The proposed qualification has been benchmarked with the following;

- Bachelor of Agriculture - Namibia University of Science and Technology, Namibia
- Bachelor of Agriculture - Lincoln University, New Zealand
- Bachelor of Agriculture - Charles Sturt University, Australia

This proposed qualification follows the same structure and shares a common title with other regional and international qualifications. All the qualifications are not intended at producing a specialist in any of the agricultural subfields, however they are aimed at producing well-rounded graduates with skills and competencies in a variety of areas including soil management, plant and animal production, as well as farming systems. The qualifications also provide the skills to deal with new challenges, change and innovation in the agricultural sectors. In addition there are common subjects covered across all the qualifications, for example soil, animal and plant science, livestock and plant production, agricultural management and soil management. Furthermore, all the qualifications are also structured to develop career-ready agricultural professional, who are able to effectively function as farmers and manage farming communities, as well as engage in market-orientated sustainable agricultural production.

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The qualification is placed at NCQF Level 7, which is comparable to the other regional and international qualifications based on each country's qualification framework. The Bachelor of Agriculture offered by NUST is placed at NQF 7; the one offered by Charles Sturt University in Australia is placed at AQF Level 7, whereas the one offered by Lincoln University in New Zealand is placed at NZQF Level 7.

Based on the different qualifications framework used by each country, there are notable differences in relation to credits and durations. While the proposed Bachelor of Agriculture carries 481 credits with a duration of 4 years, the one offered by NUST carries 372 credits and runs for 3 years. The same difference also exist on the international benchmark where the Bachelor of Agriculture offered by Charles Sturt University in Australia, has a credit value of 192, running for 3 years and the one offered by Lincoln University in New Zealand carries 360 credits, for a duration of 3 years. Furthermore, the proposed qualifications would run for 4 years as opposed to other regional and international Universities. This will allow for a wider variety of core modules to cover the general and holistic nature of the qualification, therefore producing graduates that are versatile and knowledgeable in a variety of agricultural disciplines. The 4 year duration also accords candidates with certificate IV NCQF level 4 access to the qualification.

REVIEW PERIOD

This qualification will be reviewed after 5 years upon registration.