

You Learn, We Standardize



ATIONAL OCCUPATIONAL
STANDARD FOR AN
AGRICULTURAL
PLANT INSPECTOR

NOS.API.01 First Edition

## **APPROVING AUTHORITY**

This National Occupational Standard has been prepared and published under the authority of the Zambia Qualifications Authority Board on 19<sup>th</sup> May 2022.

## ZAMBIA QUALIFICATIONS AUTHORITY

The Zambia Qualifications Authority Act No. 13 of 2011 was enacted by the Government of the Republic of Zambia to "provide for the development and implementation of a national qualifications framework; establish the Zambia Qualifications Authority; provide measures to ensure that standards and registered qualifications are internationally comparable; and provide for matters connected with, or incidental to the foregoing". Among other functions, ZAQA is responsible for determining national standards for any occupation, through various sector specific National Occupational Standards Development Teams (NOSDTs).

### **REVISION OF NATIONAL OCCUPATIONAL STANDARDS**

National Occupational Standards shall be revised after every **5 years**, or whenever necessary, by the issue of either amendments or of revised editions. It is important that users of National Occupational Standards (NOS) ascertain that they are in possession of the latest amendments or editions.

## NOS DEVELOPMENT TEAM RESPONSIBLE

This National Occupational Standard was prepared by the Agriculture National Occupational Standards Development Team, upon which the following organisations were represented:

- 1. Agricultural Institution of Zambia (AIZ)
- 2. Aquaculture Development Association of Zambia
- 3. CropLife Zambia
- 4. Ministry of Fisheries and Livestock (Department of Fisheries)
- 5. Golden Valley Agriculture Research Trust (GART)
- 6. Katete College of Agricultural Marketing
- 7. Ministry of Agriculture (Department of Agriculture)
- 8. Mulungushi University (MU)
- 9. Natural Resources Development College (NRDC)
- 10. University of Zambia (UNZA)
- 11. Veterinary Council of Zambia
- 12. Zambia Agriculture Research Institute (ZARI)
- 13. Zambia National Farmers Union (ZNFU)
- 14. Zambia Seed Trade Association (ZASTA)
- 15. Zambia Qualifications Authority (ZAQA)

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## **TABLE OF CONTENTS**

FOREWORD	iv
JUSTIFICATION	iv
ACRONYMS AND ABBREVIATIONS	V
GLOSSARY OF TERMS	vi
1. OVERVIEW	1
2. SCOPE	2
3. PERSONAL ATTRIBUTES (VALUES, ETHICS AND ATTITUDES).	2
4. UNITS AND ELEMENTS	2
5. EQUIPMENT, TOOLS AND CONSUMABLE MATERIALS	9
6. DILEMMAS/CHALLENGES AND COMPLEXITIES FOR A JOB HO	<b>LDER</b> 9
8. PARTIES INVOLVED/INTERACTING WITH THE JOB HOLDER OR	TRAINEE9
9.0 PHYSICAL DEMANDS ON THE BODY	10
ANNEX A	11
ANNEX B	12

### **FOREWORD**

The Zambia Qualifications Authority (ZAQA) is a statutory body under the Ministry of Education established by ZAQA Act No. 13 of 2011 to "provide for the development and implementation of a national qualifications framework; provide measures to ensure that standards and registered qualifications are internationally comparable; and provide for matters connected with, or incidental to the foregoing".

Among other functions, ZAQA is responsible for "determining national standards for any occupation", through various sector specific National Occupational Standards Development Teams (NOSDTs) of experts composed of representation from appropriate authorities, government departments, industry, academia, regulators, consumer associations and non-governmental organisations, etc.

This National Occupational Standard (NOS) has been developed by the Agriculture National Occupational Standards Development Team in accordance with the procedures and guidelines of ZAQA. All users should ensure that they have the latest edition of this publication as National Occupational Standards are revised from time to time.

This NOS shall be used by, among others, industry, employers, quality assurance bodies, awarding and professional bodies and education and training institutions, as a benchmark to identify training needs, develop job profiles/descriptions, develop curricula and learning programmes, in various sectors where the occupation exists.

#### JUSTIFICATION

Plant pests and diseases have been recognized as a major challenge to crop production. One of the major pathways through which plant diseases, pests and weeds are spread and introduced in an area is through the movement of plant materials and products. The increase in international trade has scaled movement in plant materials, hence, the risk of introduction of new and invasive organisms to new areas. Since it is very difficult to control pests, weeds, and diseases once introduced into a new area, many countries have established institutions and developed necessary guidelines to regulate the movement of plants and their associated products in the country and outside to minimize such negative effects. The work of the agricultural inspector is therefore to provide inspection services in order to help prevent the introduction and spread of serious plant pests, diseases, and noxious weeds that could threaten the agricultural industry through enforcement of plant health legislation. Therefore, he/she ensures that plants and plant products for trade meet prescribed health, quality, and safety standards required for domestic and international trade. In addition, he/she provides monitoring of diseases and pests to enable timely interventions.

## **ACRONYMS AND ABBREVIATIONS**

API Agriculture Plant Inspector

CS Core Skill

NOS National Occupational Standard

NOSDT National Occupational Standards Development Team

OK Organisational Knowledge

PC Performance Criteria PS Professional Skill

RK Regulatory Knowledge

RPL Recognition of Prior Learning

TK Technical Knowledge

ZAQA Zambia Qualifications Authority
ZQF Zambia Qualifications Framework

#### **GLOSSARY OF TERMS**

For the purposes of this NOS, the following terms and definitions shall apply:

**Core Skills/Generic Skills:** are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the NOS, these include communication related skills that are applicable to most job roles.

**Function:** is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of NOS.

**Job Title:** defines a unique set of functions that together form a unique employment opportunity in an organisation.

**Knowledge and Understanding:** are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.

**National Occupational Standards (NOS):** are statements of the standards of performance individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding. They are precise descriptions of what an individual is expected to be able to do in his/her work role.

National Occupational Standards (NOS) Code: is a unique reference code that identifies a NOS.

**National Occupational Standards Development Team (NOSDT):** means an established group of national stakeholders/experts responsible for the development of National Occupational Standards within a specific economic sector or occupation.

**Occupation:** is a set of job roles, which perform similar/related set of functions in an industry.

**Organisational Context:** includes the way the organisation is structured and how it operates, including the extent of operative knowledge that managers have in their relevant areas of responsibility.

**Performance Criteria:** are statements that together specify the standard of performance required when carrying out a task.

**Scope:** is the set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on the quality of performance required.

**Sector:** is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.

**Sub Sector:** is derived from a further breakdown based on the characteristics and interests of its components.

**Technical Knowledge:** is the specific knowledge needed to accomplish specific designated responsibilities.

**Unit Title:** gives a clear overall statement about what the incumbent should be able to do.

## 1. OVERVIEW

This is an introductory section providing a brief summary and specific information or commentary about the content of the NOS and the targeted sector and occupation to help the user judge whether it is relevant to them.

NOS Code	NOS. API.01	
Occupation	Agricultural Plant Inspector	
Job Title	Agricultural Plant Inspector	
Job Description	The Agricultural Plant Inspector, inspects	
	agricultural produce, equipment, and facilities to	
	ensure compliance with laws and regulations	
	governing health, quality and safety	
Job Purpose	The Agricultural Plant Inspector ensures that	
	agricultural products, produced, sold and imported	
	meet the set standards by either the government or	
ZQF Level	international bodies.	
Sector	Agriculture	
Sub sector	S	
Sub sector	• Crops	
Other Economic Sector(s)	Livestock  Trade and industry	
Other Economic Sector(s) in which the Occupation is		
Practiced		
Other Similar Jobs that	Research Technologist	
can be performed by an	1 toosal on 1 comising of	
Agricultural Inspector	Field Operations Supervisor	
	Agriculture Supervisor	
	Seed Sampler	
Minimum Educational Job		
Entry Qualification(s)	-	
Practicing License	Seed Inspector's license (for Seed Inspectors)	
Requirements (if any)		
Training/RPL	Seed inspector's course for seed inspectors	
Minimum Job Entry Age	20	
Prior Experience	Non	
Performance Criteria	As described in the Units under Section 4	

#### 2. SCOPE

This National Occupational Standard specifies the fundamental knowledge and understanding, skills and competences that an Agricultural Plant Inspector must possess to be successful in his/her job role. It is applicable to Agricultural Plant Inspectors working in public or private organisations or self-employed.

## 3. PERSONAL ATTRIBUTES (VALUES, ETHICS AND ATTITUDES)

This job requires an individual to possess:

- Creativity
- Problem solving skills
- Analytical skills
- Mathematics skills
- Integrity and respect for confidentiality
- Interpersonal skills
- Commercial Awareness
- Attention to details
- Ability to communicate effectively and clearly
- Self-motivated and team worker
- Ability to plan and prioritize,
- Quality consciousness
- · Occupational health and safety oriented

#### 4. UNITS AND ELEMENTS

This National Occupational Standard is divided into 2 Units representing the tasks that a job holder should undertake in his/her day-to-day work. Each unit is further broken down into elements depicting the number of activities to be carried out for the successful execution of a particular task.

**UNIT 1** [This unit is about Health, Safety and Environment]

Unit No.	01	
Unit Title	Health, Safety and Environmental Management	
Description	This unit is about maintaining safety, health and environmental protection for the individual and the plant	
Scope	This unit covers the following:  • Health & Safety Regulations	
	Environmental Protection.	
Performance Criter	ria (PC) w.r.t. the Scope	
Element	Performance Criteria (PC)	
Regulations	To be competent, the individual must be able to: PC1.Read, interpret and implement national and organisational safety and health policies and regulations. PC2. Assess risks and possible safety hazards of all aspects of operations	
Environmental Protection.	To be competent, the individual must be able to: PC3.Read, interpret and implement the environmental policies for the organisation PC4.Read, interpret and implement environmental standard operating procedures and policies of the organisation PC5.Read, interpret and implement national and global environmental regulations.	
Knowledge and Ur	nderstanding (K)	
	The individual on the job must demonstrate knowledge and understanding of:  OK1. Company quality, health, and safety policies OK2. Company environmental policies OK3. Company regulations and global best practices	
B. Technical Knowledge	The individual on the job must demonstrate knowledge and understanding of: TK1. Safety and health risk assessment TK2. Environmental Risk assessment TK3. Toolbox talk	
C. Regulatory context (Knowledge of Rules and Regulations)		
Skills (S)		
A. Core Skills/ Generic Skills	Writing Skills The individual on the job must be able to: CS1. Write in English and give simple concise instructions.	
	Reading Skills	

	The individual on the job must be able to:		
	CS2. Read and interpret internal/external documents.		
	CS3. Read and understand manuals, health and safety		
	instructions, memos, other company documents.		
	CS4. Read from different sources- books, screens in machine		
	and signage.		
	CS5. Interpret the various colour codes, nomenclature ar		
	acronyms related to the profession.		
	Oral Communication (Listening and Speaking skills)		
	The individual on the job must be able to :		
	CS6. Express statements or information clearly so that others		
	can hear and understand.		
	CS7. Participate in and understand the main points of simple		
	discussions.		
	CS8. Respond appropriately to any queries.		
B. Professional	Decision Making		
Skills	The individual on the job must be able to:		
	PS1. Follow organisation rule-based decision-making process.		
	PS2. Take decisions with a systematic course of actions and/or		
	· · · · · · · · · · · · · · · · · · ·		
	response.		
	Plan and Organise The individual on the inhumant he able to		
	The individual on the job must be able to:		
	PS3. Plan and organise work to meet deadlines.		
	PS4. Work constructively and collaboratively with others.		
	Customer Centricity		
	The individual on the job must be able to:		
	PS5. Follow the code of conduct.		
	PS6. Manage relationships with customers with the intent of		
	satisfying its requirements for service delivery.		
	Problem Solving and Decision Making		
	The individual on the job must be able to:		
	PS7. Recognize problems and search for solutions.		
	PS8. Choose the best methods to complete assigned tasks.		
	PS9. Approach relevant authority when required.		
	PS10. Judiciously use common sense in day-to-day activities		
	Analytical Thinking		
	The individual on the job must be able to:		
	PS11. Apply domain knowledge, observations and data to select		
	course of action to perform tasks		
	Critical Thinking		
	The individual on the job must be able to:		
	PS12. Critically evaluate information obtained from customers,		
	supervisor and co-workers to perform day-to-day		
	activities.		
	PS13. Ask relevant questions for better understanding.		

**UNIT 2** [This Unit is about inspection of the agricultural produces, equipment, and facilities to ensure compliance with laws and regulations governing health, quality, and safety].

Unit No.	02		
Unit Title	Commodity inspection and Certification		
Description	This Unit is about inspection of agricultural produces, equipment, and facilities to ensure compliance with laws and regulations governing health, quality and safety		
Scope	This Unit covers the following:  Review of import/export documents  Inspection of facilities and equipment  Plant health inspection  Seed inspection  Registration of seed growers  Seed Sampling  Certification of consignment  Phytosanitory awareness  Record keeping and report writing		
	ia (PC) w.r.t. the Scope Performance Criteria (PC)		
Review of import/export documents	To be competent, the individual must be able to: PC1. Examine the documents associated with the consignment. PC2. Verify the consignment is identifiable and accurately described PC3. Verify the consignment integrity to ensure that the commodity is in line with the phytosanitary certificate received or to be issued		
Inspection of facilities and equipment	To be competent, the individual must be able to: PC4. Conduct inspections of storage facilities, transport and packaging materials of plants, and plant products used in agricultural trade to ensure adherence and compliance to phytosanitary regulations PC5. Supervise treatment and disinfection of infrastructure and equipment of agricultural commodities where necessary		
Plant health inspections	To be competent, the individual must be able to: PC6.Inspect plants and plant products for the presence of Agricultural pests and for compliance with the set regulations. PC7. Supervise the disinfection and destruction of consignments that do not meet the prescribed standards PC8. Provide pest diagnostic identification services to clients. PC9. Interpret and enforce regulations for the movement of plants and plant products. PC10. Conduct pest surveillance and risk analysis for quarantine documentation and information purposes. PC11. Conduct disease surveys PC12. Collect samples of specimens for further identification		

Seed inspection	To be competent, the individual must be able to: PC13. Detect minimum isolation distances required to produce seeds. PC14. Conduct timely field inspections
	PC15. Use variety descriptors to ensure distinctness and uniformity of varieties
	PC16. Decide to reject or accept a field in accordance with the set standards
Registration of seed growers	To be competent, the individual must be able to: PC17. Register seed growers based on laws that relate to seed growing in Zambia
Seed Sampling	To be competent, the individual must be able to:
	PC18: Apply Seed Sampling skills
	PC19. Sample seed based on procedures and equipment required by International Seed Testing Association (ISTA)
Certification of	To be competent, the individual must be able to:
consignment	PC20.Inspect the transportation and handling procedure of
	agricultural products to ensure it meets all the regulatory requirements
	PC21.Certify consignments that have met the phytosanitary
	requirements.
	PC22.Ensure that consignments that fail the inspection are
	sufficiently secured until further action.
	PC23. Recommend consignment treatment where appropriate.
Phytosanitary	PC24. Supervise consignment treatment.  To be competent, the individual must be able to:
awareness	PC25. Assist in phytosanitary awareness creation activities to
	ensure compliance with phytosanitary regulations
	PC26. Offer appropriate advisory phytosanitary services
December 1	To be computed the individual revet be able to
Record keeping and report writing	To be competent, the individual must be able to: PC27. Document all processes of consignment inspection.
and report writing	PC28. Store the data safely.
	PC29 Write reports of discoveries or findings observed during an
	inspection
Knowledge and Un	derstanding (K)
	The individual on the job must demonstrate knowledge and
Context	understanding of:
(Knowledge of	
the organisation	work OK2. Relevant health and safety requirements applicable in the
and its	
processes)	OK3. Own job role and responsibilities and sources for information
•	pertaining to work
	OK4. Who to approach for support in order to obtain work-related
	information, clarifications, and support

	OK5. The health, hygiene, safety, and quality standards and the impact of not following the standards on consumers and the		
	business		
	OK6. Documentation and related procedures applicable in the context of work		
B. Technical	The individual on the job must demonstrate knowledge and		
Knowledge	understanding of: TK1. Phytosanitary regulations		
	TK2. Enforcing quarantine and phytosanitary regulations		
	TK3. How to conduct inspections-plant health TK4. Seeds inspections procedures		
	TK5. Fumigation procedures on equipment and facilities used for		
	trade TK6. Noxious weeds		
	TK7. Quarantine and non-quarantine pests and diseases		
	associated with international trade TK8. Crop protection strategies.		
	TK9. Seed production practices		
	TK10.Pest and disease surveillance strategies		
	TK 11.Pest risk analyses TK12. Current Agricultural issues mainly those relating to Plant		
	health, plant imports, and exports		
Skills (S)			
A. Core Skills	Reading Skills		
A. Core Skills Generic Skills	The individual on the job must be able to:		
	The individual on the job must be able to: CS1. Read internal information documents sent by internal teams/		
	The individual on the job must be able to: CS1. Read internal information documents sent by internal teams/ supervisor CS2. Update oneself about the latest technologies by reading		
	The individual on the job must be able to: CS1. Read internal information documents sent by internal teams/ supervisor CS2. Update oneself about the latest technologies by reading research articles, attending seminars, workshops, etc.		
	<ul> <li>The individual on the job must be able to:</li> <li>CS1. Read internal information documents sent by internal teams/ supervisor</li> <li>CS2. Update oneself about the latest technologies by reading research articles, attending seminars, workshops, etc.</li> <li>CS3. Read equipment manuals and process documents to</li> </ul>		
	The individual on the job must be able to: CS1. Read internal information documents sent by internal teams/ supervisor CS2. Update oneself about the latest technologies by reading research articles, attending seminars, workshops, etc. CS3. Read equipment manuals and process documents to understand the equipment operation and process requirement		
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	The individual on the job must be able to: CS1. Read internal information documents sent by internal teams/ supervisor CS2. Update oneself about the latest technologies by reading research articles, attending seminars, workshops, etc. CS3. Read equipment manuals and process documents to understand the equipment operation and process requirement  Writing Skills The individual on the job must be able to: CS4. Record and maintain all the information plan quarantine and		
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B. Professional	The individual on the job must be able to: CS1. Read internal information documents sent by internal teams/ supervisor CS2. Update oneself about the latest technologies by reading research articles, attending seminars, workshops, etc. CS3. Read equipment manuals and process documents to understand the equipment operation and process requirement  Writing Skills The individual on the job must be able to: CS4. Record and maintain all the information plan quarantine and phytosanitary activities CS5. Write reports  Oral Communication (Listening and Speaking skills) The individual on the job must be able to: CS6. Effectively communicate with the staff, colleagues, and relevant stakeholders CS7. Be polite and courteous under all circumstances  Decision Making Skills		
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The individual on the job must be able to:

- PS2. Plan and organise the work order and jobs received from the supervisor
- PS3. Plan and prioritise the work based on the instructions received from the supervisor
- PS4. Plan to utilise time and equipment effectively

## **Customer Centricity**

The individual on the job must be able to:

PS5.Manage good relationships with the manager and colleagues

## **Problem Solving Skills**

The individual on the job must be able to:

PS6. Study the problem and provide a best solution

PS7. Quickly identify problems and solve them immediately

## **Analytical Thinking**

The individual on the job must be able to:

PS8. Analyse the information received from officers and specialists

PS9. Think analytically to come up with solutions

## **Critical Thinking**

The individual on the job must be able to:

PS10. Determine how to improve productivity and production PS11.Find innovative solutions for promoting agricultural technology

## 5. EQUIPMENT, TOOLS AND CONSUMABLE MATERIALS

These include, but not limited to; Computer, Printer and relevant Software programs, Personal protective equipment (PPE), moisture meter, measuring cylinders, beakers, crucibles, test tubes, funnels, flasks, microscope, test tubes, beakers, magnifying glasses, weighing machines, Bunsen burners, dropper.

## 6. DILEMMAS/CHALLENGES AND COMPLEXITIES FOR A JOB HOLDER

Dilemmas associated with the job of an Agriculture Inspectors include long working hours, exposure to chemical, physical and biological hazards, time pressure to complete tasks, working in extreme weather such as hot and cold conditions, working in noisy, wet and dusty environments, etc.

### 6.1 Alternative Choices (Solutions) to Dilemmas and Complexities

Solutions to dilemmas include carrying out risk assessment and implementing appropriate control measures, ensuring good time management and planning, participating in workplace safety sensitization and awareness, supporting capacity building through training, managing work stress, adhering to company's safety and standard operating procedures at all times, paying attention to detail, consulting extensively within and outside one's department/team on safety and other issues.

#### 7. WORKING CONDITIONS/ENVIRONMENT

Working conditions include working in cold, hot and wet conditions, working at heights, stand/walk for long hours, working in laboratory environment, working in shifts, areas that are dusty.

## 8. PARTIES INVOLVED/INTERACTING WITH THE JOB HOLDER OR TRAINEE

#### 8.1 Internal/Within the Organisation

Parties involved/interacting with the job holder who are internal to the organisation include supervisors, subordinates, and other employees.

## 8.2 External/Outside the Organisation

Parties involved/interacting with the job holder who are external include customers/clients, government regulators, trainers, suppliers of equipment/tools/consumables, occupational health and safety associations, Academia etc.

## 9.0 PHYSICAL DEMANDS ON THE BODY

- Physique to sustain strenuous conditions;
- Be able to walk and stand for long periods of time;
- Bend, stretch, twist, or reach out;
- Be able to lift relatively heavy materials, tools and equipment;
- Be able to use fingers, hands and feet with ease to complete the assigned task (dexterity)

## ANNEX A Criteria for Assessments based on this NOS

#### A.1 Guidelines for Assessment

A.1.1 Criteria for assessment for curricula and learning programmes based on this NOS will be created by curricula and programmes developers. Each Performance Criteria (PC) will be assigned marks proportional to its importance in the NOS. Curricula and programmes developers will also lay down proportion of marks for theory and practical skills for each performance criteria, giving more weight to practical skills.

There shall be allocated the 'Total Mark', which will be the sum of all marks in each Unit, distributed across the number of PCs in that particular Unit. The 'out of' mark will be the mark allocated to each PC, which will be shared between theory and skills practical assessments.

**A.1.2** Awarding/assessment bodies or institutions and other users of the NOS will create unique question papers for the theory part and evaluations for skill practical part for their respective candidates.

# ANNEX B NOS Version Control

This Annex gives details necessary for the tracking of the NOS versions based on the number of revisions.

NOS Code	NOS.API.01		
ZQF Level	6	Version Number	01
Sector	Agriculture	Date of Approval	19 <sup>th</sup> May 2022
Sub Sector	Crops and Livestock	Date of Last Review	N/A
Occupation	Agricultural plant Inspector	Date of Next Review	May 2027

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