

**THE NATIONAL COUNCIL FOR TECHNICAL AND VOCATIONAL EDUCATION AND
TRAINING**



OCCUPATIONAL STANDARDS

OCCUPATION: ANIMAL BREEDING TECHNICIAN

LEVEL: NTA LEVEL 4

FEBRUARY 2024

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ABBREVIATIONS

CBET	Competency Based Education and Training
NACTVET	National Council for Technical and Vocational Education and Training
NOS	National Occupational Standards
OSHA	Occupational Safety and Health Administration
OS	Occupational Standards
OXT	Oxytocin
PG	Prostaglandin
PMSG	Pregnant Mare Serotonin (Gonadotropin)
SOP	Standard Operating Procedures
TET	Technical Education and Training
TVET	Technical and Vocational Education and Training

GLOSSARY OF TERMS

Circumstantial Knowledge:	Detailed knowledge, which allows the decision-making in regard to different circumstances and cross cutting issues.
Competence:	The ability to use knowledge, understanding, practical, and thinking skills to perform effectively to the workplace standards required in employment.
Competency:	A description of the ability one possesses when able to perform a given occupational task effectively and efficiently.
Competency-based Education:	An instructional programme that derives its content from validated tasks and bases assessment on the learner's performance.
Curriculum:	A description or composite of statements about "what is to be learned" by the trainee/student in a particular instructional programme; a product that states the "intended learning outcomes".
Educational/Training Programme:	The complete curriculum and instruction (what and how) that is designed to prepare a person for employment in a job or other particular performance situation.
Occupation:	A specific position requiring the performance of specific tasks - essentially the same tasks are performed by all employees having the same title. (Example: baker)
Occupational Area:	This is a broad grouping of related jobs. (Examples: livestock breeding services).
Occupational Standards:	Specific requirements of competences people are expected to demonstrate in a particular occupational area, including knowledge and relevant attitudes. They also act as a performance tool of assessment of the prescribed outcomes.
Occupational/Job Analysis:	A process used to identify the tasks that are important to employees in any given occupation.
Performance Criteria:	Indicate expected end results or outcomes in the form of evaluative statements.
Skills:	The ability to perform occupational tasks with a high degree of proficiency within a given occupation. Skill is conceived of as a composite of three completely interdependent components: cognitive, affective, and psychomotor.
Standards:	A set of statements, which, if proved true under working conditions, means that an individual is meeting an expected level and type of performance.
Task Analysis:	The process of analysing each task to determine the steps, circumstantial knowledge, attitudes, performance standards, tools and

materials needed, as well as safety concerns required for the employees performing it.

Task:

A work activity that has a definite beginning and ending, is observable or measurable, and consists of two or more definite steps that leads to a product, service, or decision.

**Underpinning
Knowledge:**

Crucial knowledge that an individual must acquire in order to demonstrate competences that are associated in performing a given task.

Verification Process:

The process of having experts review and confirm the importance of the task (competency) statements identified through occupational analysis. Other questions, such as the degree of task learning difficulty are also frequently asked. This process is also sometimes referred to as validation.

**Occupational
Competence:**

The application of knowledge and skills that consistently meet the standards required by the work context.

1.0. INTRODUCTION

Technical Education and Training (TET) is one of the most important education sub-sectors in Tanzania, responsible for developing a skilled workforce to support the country's industrialization economic agenda. Tanzania's *Development Vision 2025* intends to raise the country's economy to a middle-income status, with a high level of human development. This requires a skilled workforce that is aligned with the needs of the public and private sectors of the economy. The National Council for Technical and Vocational Education and Training (NACTVET) has begun the job of drafting Occupational Standards (OS) that will eventually be adopted as National Occupational Standards (NOS) for use in the delivery of TET that meets the needs of the labour market and the country's economic agenda.

Occupational Standards (OS) are performance criteria that are matched with labour market demands. Each of them describes the functions, performance standards, and understanding or knowledge underpinning a given occupation. They combine skills, knowledge, and attitudes to describe best practice. They are useful tools for establishing job roles, personnel recruitment, supervision, and appraisal, as well as TET Standards. They are also helpful for benchmarking and harmonizing job qualifications on a national and international level. Standards, in general, provide a solid framework for high-quality TET that is labour market-relevant, current, and consistent in application across all public and private institutions.

However, it must be noted that Occupational Standards are different from Training /Education Standards. Occupational standards are defined in terms of activities performed by a person in a selected occupation (e.g., an electrical engineer designs electrical circuits, performs troubleshooting in electrical circuits, etc.), and are usually defined by Employers following procedures as agreed upon by all the stakeholders. On the other hand, Training and Education Standards are developed from the activities defined in the occupational standards, and they specify learning objectives to ensure that the necessary skills and knowledge are developed by a person to enable him/her to function at an agreed level in an occupation. Training and Education Standards are used to define curricula in training institutions. It is critical, however, to establish a direct link between the occupational standards and the training standards for both of them to respond collaboratively to the demands of the labour market.

For the purpose of TET delivery, Tanzania has adopted the Competence Based Education and Training (CBET) approach. The CBET approach focuses on providing learners with the skills and knowledge required to meet the occupational standards. Occupational standards are thus the starting point for developing competency-based training (CBET) programmes. Therefore, it is quite pertinent for TET institutions to use the relevant occupational standards as a benchmark for formulating their curricula.

Occupational Standards are developed based on a given occupation's current and future demands. As a result, they serve as a means of bridging the gap between the worlds of employment and technical education and training.

The document explains how the occupational standards were developed, as well as the scope, the occupational profile in the form of DACUM charts, and the Occupational Standards.

2.0. OCCUPATIONAL STANDARD DEVELOPMENT PROCESS

The process of developing these Occupational Standards involved both local and international expertise. The process began with an examination of major documents that guide Tanzanian skills development including the *10-year National Skills Development Strategy (2016-2026)*. NACTVET labour market reports were also used in the literature review to determine the skills demand in the Tanzanian labour market as a whole.

After the literature review, a team of experts in consultation with practitioners developed draft occupational standards. The draft document was used to develop an occupational profile for each occupation (DACUM Chart), which is attached as an **Appendix** to every Occupational Standard.

The occupational standards were validated during the stakeholders' forum held on 22nd and 23rd February 2024 at Morogoro. The information from the stakeholders' forum provides insight from the workplace, professional bodies, regulatory bodies and sector ministries regarding trends and changes in the profession, including how well graduates are prepared for working in the occupation.

3.0. THE SCOPE AND OVERVIEW OF THE OCCUPATION STANDARDS FOR ANIMAL BREEDING TECHNICIANS

These standards cover a broad range of duties and tasks that can be performed by an Animal Breeding Technician. However, the occupational standards are not meant to replace individual job descriptions.

Instead, they are to be used for guidance in defining skill levels and knowledge for the technician in specific settings or positions. The Animal Breeding Technician may perform tasks in a number of key areas of the occupational standards, but not necessarily in all areas. For example, in large operations, other individuals may be employed or designated to perform specific tasks.

The Animal Breeding Technician plays an important role in the feeding, management, reproduction, epidemic prevention, feed and utilization during the breeding of livestock and poultry. They will provide the society with excellent meat, egg and milk products to meet people's food and nutritional needs. The Animal Breeding Technician is responsible for various tasks in delivery, obstetrics, nursing of new-born and lactating young animals, animal breeding control, breeding management, feeding, and epidemic prevention of livestock and poultry. Generally, the Animal Breeding Technician performs the following responsibilities:

- a) Estrus identification of female livestock
- b) Collection of the semen of male livestock and poultry
- c) Treatment of the semen of livestock and poultry
- d) Breeding technology of livestock and poultry through artificial insemination, embryo transfer
- e) Animal breeding control
- f) Knowing and identification of feed ingredients
- g) Identification of feed additives
- h) Mastering the underpinning knowledge of animal nutrition
- i) Animal nutritional requirements and feeding standards
- j) Livestock obstetrics
- k) Livestock pregnancy diagnosis
- l) Livestock obstetrics
- m) Egg hatching
- n) Collection of farm data

- o) Common equipment applications in farms
- p) Basic management of livestock and poultry breeding
- q) Feeding basic management of commercial livestock and poultry farms
- r) Disinfection of livestock and poultry farms
- s) Treatment of manure of livestock and poultry
- t) Livestock and poultry immunity
- u) Epidemic prevention measures of farms
- v) Basic management of farms

The Occupational Standards have been clustered into NTA qualification levels, i.e. NTA level 4, 5 and 6.

4.0. VALIDITY PERIOD

Due to the rapid development of technology, the validity period of occupational standards is 3-5 years. The review will proceed in the same manner as the one before it, with new occupational standards being developed based on current trends of the labour market.

5.0. OCCUPATIONAL STANDARDS

5.1 OCCUPATIONAL STANDARDS FOR ANIMAL BREEDING TECHNICIAN – NTA LEVEL 4

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	ENSURE ESTRUS IDENTIFICATION OF LIVESTOCK AND POULTRY	DUTY NO.	401
TASK TITLE	DETERMINE BREED SEX	TASK NO.	4011
PERFORMANCE CRITERIA	The person performing this task must be able to determine the sex of the livestock and poultry according to the physiological characteristics of the livestock and poultry and through visual observation.		
RANGE STATEMENT	The task can be performed in the farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Protective equipment: medical rubber gloves, protective suit, mask, hat, rubber boots (shoes); 2. Tools and instruments: restraint rope, restraint frame; 3. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations 2. Select appropriate tools and equipment for this task; 3. Drive livestock and poultry correctly; 4. Restrain livestock and poultry; 5. Identify the sex of poultry by turning the anus; vent sexing method. 6. Identify the sex by observing the shape of the pudendal hole of the rabbit; 7. Identify the sex by visual observation of pigs, cattle and sheep; 8. Maintain sanitation and hygiene.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Restrain livestock and poultry; 1.2 Identify sex by turning the anus; 1.3 Identify sex by observing the pudendal hole; 1.4 Identify sex by observing the external characteristics of livestock and poultry. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 The importance of sex identification of livestock and poultry; 2.2 Differences in sex identification methods of livestock and poultry;	

	2.3 The physiological function of the reproductive system of livestock; 2.4 The physiological function of the reproductive system of poultry. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Methods for sex identification of different types of livestock and poultry; 3.2 Methods for sex identification of livestock and poultry at different ages; 3.3 Anatomical orientation of reproductive organs of livestock and poultry; 3.4 Differences in physiological functions of the reproductive system of different sexes in livestock and poultry. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Time management skills. 4.6. Leadership skills
DESCRIPTION OF THE END PRODUCT / SERVICE	The breed sex on livestock and poultry is determined according to production practices of livestock and poultry.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Occupational health and safety; 2. Livestock and poultry health management; 3. Veterinary laws and regulations; 4. National or industry standards; 5. Young animal care; 6. Principles for group feeding by sex.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	ENSURE ESTRUS IDENTIFICATION OF LIVESTOCK AND POULTRY	DUTY NO.	401
TASK TITLE	REGULATE REPRODUCTIVE HORMONE	TASK NO.	4012
PERFORMANCE CRITERIA	The person performing this task must be able to regulate breeding activities such as estrus induction, synchronized estrus, and superovulation of livestock and poultry according to standard reproductive hormones regulations and characteristics of commonly-used reproductive hormones.		
RANGE STATEMENT	The task can be performed in the farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Reproductive female livestock: sow, cow, ewe, doe, female rabbit; 2. Reproductive hormone: prostaglandin (PG), progesterone (P), gonadotropin-releasing hormone (GnRH), follicle-stimulating hormone (FSH), luteinizing hormone (LH), human chorionic gonadotropin (HCG), pregnant mare's serum hormone (PMSG), oxytocin (OXT); 3. Metal syringe (with needle); 4. Cattle and sheep vaginal plug (CIDR, PRID); 5. Cattle and sheep vaginal speculum; 6. Disinfectants: iodophor, 75% alcohol; 7. Wiping items: towels, paper, cotton balls; 8. Vulva disinfectants: lysol, bromogeramine or potassium permanganate; 9. Lubricant; 10. Protective equipment: protective hat, mask, long-arm gloves, short-arm gloves, work clothes, work shoes, nail clipper; 11. Tweezers; 12. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Select appropriate tools and drugs for this task; 3. Classify and store various reproductive hormones;		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Take health protection and safety precautions; 1.2 Standardize the classification and storage of reproductive hormones; 1.3 Standardize the use of reproductive hormones;	

4. Use the syringe; 5. Conduct intramuscular injection; 6. Conduct intravenous injection; 7. Place cattle and sheep vaginal plug; 8. Induce estrus of the female livestock; 9. Stimulate the synchronized estrus of the female livestock; 10. Stimulate superovulation of the female livestock; 11. Induce the synchronized delivery of the female livestock; 12. Record status; 13. Maintain sanitation and hygiene.	1.4 Induce estrus of the female livestock; 1.5 Regulate the synchronized estrus of the female livestock; 1.6 Regulate superovulation of the female livestock; 1.7 Regulate the synchronized delivery of the female livestock; 1.8 Install the vaginal plug. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Function of reproductive hormones; 2.2 Proper use of reproductive hormones. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Classification and preservation of reproductive hormones; 3.2 Selection of reproductive hormones; 3.3 Use of reproductive hormones. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Time management skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The reproductive hormones of livestock and poultry are regulated according to the standard reproductive hormones principles and the characteristics of commonly-used reproductive hormones.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Occupational health and safety; 2. Breeding and health management of the female livestock; 3. Agricultural laws and regulations; 4. National or industry standards; 5. Animal disinfection and epidemic prevention;

	6. Waste disposal methods.
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OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	ENSURE ESTRUS IDENTIFICATION OF LIVESTOCK AND POULTRY	DUTY NO.	401
TASK TITLE	CARRY OUT ESTRUS IDENTIFICATION OF CATTLE AND SHEEP AND GOAT	TASK NO.	4013
PERFORMANCE CRITERIA	The person performing this task must be able to identify the estrus of cattle and sheep according to their physical changes, behaviour changes, and vaginal or rectal examination.		
RANGE STATEMENT	The task can be performed in the farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Reproductive cow and ewe; 2. Marker crayon; 3. Cattle and sheep vaginal speculum; 4. Electronic pedometer; 5. Head-mounted searchlight; 6. Lubricant or soap; 7. Wiping items: towels, paper, cotton balls; 8. Protective equipment: protective hat, mask, long-arm gloves, short-arm gloves, work clothes, work shoes, nail clipper; 9. Restraint frame; 10. Estrus record book; 11. Electronic computer; 12. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Observe the expression, feeding situation, vulva changes and mucus of the estrous cows (sheep); 3. Restrain the estrous cows (sheep);		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Take health protection and safety precautions; 1.2 Observe the external changes of the estrous cows (sheep); 1.3 Check the vagina of the estrous cows (sheep); 1.4 Check the rectum of estrous cows; 1.5 Use marker crayons.	

4. Use vaginal speculum and head-mounted searchlights to observe the cervix of the estrous cows (sheep); 5. Conduct rectal examination to determine the estrus situation of the cows; 6. Analyse the steps of the electronic pedometer to determine the estrus situation of the cows (sheep); 7. Mark the estrous of cows and sheep (8. Record the estrus situation of the cattle and sheep; 9. Statistically analyse the estrus situation of the cows and sheep) by electronic computers; 10. Maintain sanitation and hygiene.	2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Key points of visual observation of the estrous cows (sheep); 2.2 Key points of vaginal examination of the estrous cows (sheep); 2.3 Key points of rectal examination of the estrous cows. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Judgment of the estrus period of the cows (sheep); 3.2 Estrus duration of the cows (sheep); 3.3 Number of estrus identifications; 3.4 Precautions for vaginal examination; 3.5 Precautions for rectal examination. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Time management skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The estrus identification of the cattle and sheep determined according to their physical changes, behaviour changes, and vaginal or rectal examination.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Occupational health and safety; 2. Restraint of cattle and sheep; 3. Animal disinfection and epidemic prevention; 4. Waste disposal methods; 5. Agricultural laws and regulations; 6. National or industry standards; 7. Nutrition and feeding of the cows (sheep).

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	ENSURE ESTRUS IDENTIFICATION OF LIVESTOCK AND POULTRY	DUTY NO.	401
TASK TITLE	CARRY OUT ESTRUS IDENTIFICATION OF THE PIG	TASK NO.	4014
PERFORMANCE CRITERIA	The person performing this task must be able to identify the estrus of pigs according to their physical changes, behaviour changes, back pressure test and vaginal or rectal examination.		
RANGE STATEMENT	The task can be performed in the breeding house of the pig farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Reproductive sow; 2. Estrus-checking boar; 2. Marker crayon; 3. Vaginal speculum; 4. Head-mounted searchlight; 6. Lubricant or soap; 7. Wiping items: towels, paper, cotton balls; 8. Protective equipment: protective hat, mask, short-arm gloves, work clothes, work shoes, nail clipper; 9. Estrus record book; 10. Electronic computer; 11. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Drive the estrus-checking boars to contact the reproductive sows; 3. Observe the expression, feeding situation, vulva changes and mucus of the estrous sow; 4. Use vaginal speculum and head-mounted searchlights to observe the cervix of the estrous sows;		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Take health protection and safety precautions; 1.2 Properly drive the estrus-checking boars into contact with the sows; 1.3 Observe physical and behavioural changes of the estrous sows; 1.4 Check the vagina of the estrous sow; 1.5 Conduct standardized and safe back pressure test;	

5. Carry out a back pressure test on estrous sows to judge whether they stand still; 6. Accurately mark the estrous sows; 7. Accurately record the estrus situation of sows; 8. Statistically analyse the estrus situation of the sows by electronic computers; 9. Maintain sanitation and hygiene.	1.6 Use marker crayons. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Key points of visual observation of estrous sows; 2.2 Key points of vaginal inspection of estrous sows; 2.3 Key points of back pressure test of estrous sows. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Judgment of sow's estrus period; 3.2 Estrus duration of sows; 3.3 Number of estrus identifications; 3.4 Estrus test of boars; 3.5 Judgment of the results of the sow back pressure test. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Time management skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The estrus identification of the pigs determined according to their physical changes, behaviour changes, back pressure test and vaginal or rectal examination
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Occupational health and safety; 2. Animal disinfection and epidemic prevention; 3. Sow feeding and nutrition; 4. Waste disposal methods; 5. Agricultural laws and regulations; 6. National or industry standards.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	COLLECT THE SEMEN FROM LIVESTOCK AND POULTRY	DUTY NO.	402
TASK TITLE	COLLECT THE SEMEN FROM LIVESTOCK	TASK NO.	4021
PERFORMANCE CRITERIA	The person performing this task must be able to collect the livestock semen according to the standards of livestock semen collections.		
RANGE STATEMENT	The task can be performed in the farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Semen collection site; 2. Protective equipment: medical rubber gloves, protective suit, mask, hat, rubber boots (shoes); 3. Tools and instruments: artificial vagina outer cylinder, inner tube, semen collection cup (bottle, tube), piston (gas nozzle), fixed collar, disposable fresh-keeping bag, gauze; 4. Dummy teaser: fake dummy teaser, real dummy teaser; 5. Other drugs: potassium permanganate, towel, lubricant; 6. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Select appropriate tools and equipment for this task; 3. Train the male livestock; 4. Install the artificial vagina; 5. Conduct proper disinfection of semen collection instruments; 6. Collect semen from cattle, sheep, horses, and rabbits by using the artificial vagina method; 7. Collect semen from pigs by hand holding method; 8. Mark the male livestock that have been collected of semen;		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Prepare tools and equipment for semen collection; 1.2 Train the male livestock; 1.3 Use artificial vagina method and hand holding method in a standardized and safe manner to collect semen from different male livestock. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 The purpose and significance of semen collection from the male livestock.	

9. Clean the place and tools; 10. Store tools and equipment.	3.0 Theories The person performing this task must be able to explain the following: 3.1 Reproductive organs and functions of the male livestock; 3.2 Different semen collection methods for different male livestock. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Time management skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The semen of livestock is collected according to the standards of livestock semen collections.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Livestock nutrition supply; 2. Livestock health management; 3. Occupational health and safety; 4. Disinfection and sterilization of instruments; 5. Waste disposal methods.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	COLLECT THE SEMEN FROM LIVESTOCK AND POULTRY	DUTY NO.	402
TASK TITLE	COLLECT THE SEMEN FROM POULTRY	TASK NO.	4022
PERFORMANCE CRITERIA	The person performing this task must be able to collect the poultry semen according to the standards of poultry semen collections.		
RANGE STATEMENT	The task can be performed in the farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Semen collection site; 2. Protective equipment: medical rubber gloves, protective suit, mask, hat, rubber boots (shoes); 3. Tools and instruments: Semen collection cup (bottle, tube), plastic dropper, scissors; 4. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Select appropriate tools and equipment for this task; 3. Train the male poultry; 4. Conduct proper disinfection of semen collection instruments; 5. Shear the male poultry; 6. Collect semen from the male poultry by massaging; 7. Mark the male poultry after semen collection; 8. Clean the place and tools; 9. Store tools and equipment.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Prepare tools and equipment for semen collection; 1.2 Train the male poultry; 1.3 Use the massage method in a standardized and safe manner to collect semen from the male poultry. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 The purpose and significance of semen collection from the male poultry. 3.0 Theories The person performing this task must be able to explain the following:	

	3.1 Reproductive organs and functions of the male poultry; 3.2 Different semen collection methods for different male poultry. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Time management skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The semen of poultry collected according to the standards of poultry semen collections.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Poultry nutrition supply; 2. Poultry health management; 3. Occupational health and safety; 4. Disinfection and sterilization of instruments; 5. Waste disposal methods.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	PERFORM IDENTIFICATION OF FEED INGREDIENTS	DUTY NO.	403
TASK TITLE	IDENTIFY THE COARSE FODDER	TASK NO.	4031
PERFORMANCE CRITERIA	The person performing this task must be able to accurately identify various kinds of coarse fodder and collect coarse fodder samples according to the characteristics and value of coarse fodder.		
RANGE STATEMENT	The task can be performed in the feeding workshop of the farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Porcelain plate; 2. Personal medical protective equipment: disposable gloves, protective suit, mask, headgear, etc.; 3. Tweezers; 4. Ensilage cutter; 5. Sampler; 6. Scissors; 7. Record book, pen; 8. Sample sack; 9. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Select appropriate tools and equipment for this task; 3. Collect coarse fodder samples; 4. Identify the coarse fodder; 4. Clean the tools, equipment and workplaces; 5. Safely arrange and store the tools and equipment.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Conduct coarse fodder sampling; 1.1 Identify the coarse fodder. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 The identification principle of the coarse fodder; 2.2 The significance of rational utilization of the coarse fodder; 2.3 Key points of coarse fodder sampling.	

	3.0 Theories The person performing this task must be able to explain the following: 3.1 Categories of different coarse fodders. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Calculating skills; 4.6 Communication skills; 4.7 Time management skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Coarse fodder samples are identified according to the characteristics and nutritive value of coarse fodder.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Use of stockbreeding machine; 2. Development and marketing of feed; 3. Production cost accounting.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	PERFORM IDENTIFICATION OF FEED INGREDIENTS	DUTY NO.	403
TASK TITLE	IDENTIFY THE GREEN FORAGE	TASK NO.	4032
PERFORMANCE CRITERIA	The person performing this task must be able to accurately identify various kinds of green forage and collect pasture samples according to the characteristics and value of green forage.		
RANGE STATEMENT	The task can be performed in the feeding workshop of the farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Porcelain plate; 2. Personal medical protective equipment: disposable gloves, protective suit, mask, headgear, etc.; 3. Sickle; 4. Sampler; 5. Scissors; 6. Record book, pen; 7. Sample sack; 8. Safety gear; 9. Quadrant.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Select appropriate tools and equipment for this task; 3. Identify the green forage; 4. Collect pasture samples; 5. Clean the tools, equipment and workplaces; 6. Safely arrange and store the tools and equipment.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Identify green forage; 1.2 Conduct pasture sampling. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 The nutritional characteristics and feeding value of green forage; 2.2 Principles of pasture sampling; 2.3 Key points of pasture sample collection.	

	3.0 Theories The person performing this task must be able to explain the following: 3.1 Types of green forage. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Calculating skills; 4.6 Communication skills; 4.7 Time management skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The green forages identified according to the characteristics and value of green forage.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Use of stockbreeding machine for classification of feed ingredients; 2. Development and marketing of feed; 3. Production cost accounting; 4. Detection of microbial content and types; 5. Sampling techniques.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	PERFORM IDENTIFICATION OF FEED INGREDIENTS	DUTY NO.	403
TASK TITLE	IDENTIFY THE ENERGY FODDERS	TASK NO.	4033
PERFORMANCE CRITERIA	The person performing this task must be able to accurately identify energy fodders such as corn, bran, sorghum, and sweet potatoes according to the characteristics and value of the energy fodder.		
RANGE STATEMENT	The task can be performed in the feeding workshop of the farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Porcelain plate; 2. Personal medical protective equipment: disposable gloves, protective suit, mask, headgear, etc.;; 3. Tweezers; 4. Planting bottle; 5. Scissors; 6. Record book, pen; 7. Sample sack; 8. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Select appropriate tools and equipment for this task; 3. Identify energy fodders such as corn, bran, sorghum, and sweet potatoes; 4. Evaluate the nutritional value of energy fodders such as corn, bran, sorghum, and sweet potatoes; 5. Collect energy fodder samples; 6. Clean the tools, equipment and workplaces; 7. Safely arrange and store the tools and equipment.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Identify energy fodders such as corn, bran, sorghum, and sweet potatoes; 1.2 Correctly evaluate the nutritional characteristics of energy fodders such as corn, bran, sorghum, and sweet potatoes by consulting relevant information; 1.3 Conduct energy fodder sampling. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Feeding value of energy fodders; 2.2 Principles of energy fodder sample collection.	

	3.0 Theories The person performing this task must be able to explain the following: 3.1 Type of energy fodder; 3.2 Common antinutritional factors in energy fodders and measures to eliminate them. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Calculating skills; 4.6 Communication skills; 4.7 Time management skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Energy fodders identified according to the characteristics and value of the energy fodder.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Use of stockbreeding machine for classification of feed ingredients; 2. Development and marketing of feed; 3. Production cost accounting; 4. Nutritional value of common livestock products.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	PERFORM IDENTIFICATION OF FEED INGREDIENTS	DUTY NO.	403
TASK TITLE	IDENTIFY THE PROTEIN FODDER	TASK NO.	4034
PERFORMANCE CRITERIA	The person performing this task must be able to identify protein fodder, such as soybean meal, cottonseed meal, fish meal and other feed according to the characteristics and value of protein feed.		
RANGE STATEMENT	The task can be performed in the feeding workshop of the farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Porcelain plate; 2. Personal medical protective equipment: disposable gloves, protective suit, mask, headgear, etc.; 3. Microscope; 4. Planting bottle; 5. Scissors; 6. Record book, pen; 7. Sample sack; 8. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Select appropriate tools and equipment for this task; 3. Identify the protein feeds such as soybean meal, cottonseed meal and fish meal; 4. Evaluate the nutritional value of protein feeds such as soybean meal, cottonseed meal and fish meal; 5. Collect protein feed samples; 6. Clean the tools, equipment and workplaces; 7. Safely arrange and store the tools and equipment.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Identify the protein feeds such as soybean meal, cottonseed meal and fish meal; 1.2 Correctly evaluate the nutritional characteristics of protein feeds such as soybean meal, cottonseed meal and fish meal by consulting relevant information; 1.3 Conduct protein feed sampling. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Feeding value of protein feeds; 2.2 Principles of protein feed sample collection.	

	3.0 Theories The person performing this task must be able to explain the following: 3.1 Type of protein feeds; 3.2 Common antinutritional factors in protein feed and measures to eliminate them. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Calculating skills; 4.6 Communication skills; 4.7 Time management skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The protein feeds such as soybean meal, cottonseed meal and fish meal are accurately identified and protein feed samples are correctly collected according to the characteristics of protein feeds.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Use of stockbreeding machine for classification of feed ingredients; 2. Development and marketing of feed; 3. Production cost accounting; 4. Nutritional value of common livestock products.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	PERFORM IDENTIFICATION OF FEED INGREDIENTS	DUTY NO.	403
TASK TITLE	IDENTIFY MINERALS	TASK NO.	4035
PERFORMANCE CRITERIA	The person performing this task must identify different minerals for the livestock and poultry needs according to the standard mineral requirements.		
RANGE STATEMENT	The task can be performed in the feeding workshop of the farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Medicine spoon; 2. Personal medical protective equipment: disposable gloves, protective suit, mask, headgear, etc.;; 3. Tweezers; 4. Balance; 5. Record book, pen; 6. Sample sack; 7. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Select appropriate tools and equipment for this task; 3. Conduct correct classification of minerals; 4. Evaluate the nutritional value of various minerals; 5. Clean the tools, equipment and workplaces; 6. Safely arrange and store the tools and equipment.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Conduct correct mineral supplementation in feed; 1.2 Conduct reasonable classification of mineral feeds. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Feeding value of minerals; 2.2 Key points for the rational use of minerals in different animals. 3.0 Theories The person performing this task must be able to explain the following:	

	3.1 Type of minerals; 3.2 Various mineral feed sources. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Calculating skills; 4.6 Communication skills; 4.7 Time management skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Minerals for livestock and poultry are identified according to the standard mineral requirements. Mi.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Use of stockbreeding machine for classification of feed ingredients; 2. Development and marketing of feed; 3. Production cost accounting; 4. Nutritional value of common livestock products.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	PERFORM IDENTIFICATION OF FEED INGREDIENTS	DUTY NO.	403
TASK TITLE	IDENTIFY VITAMIN FEEDS;	TASK NO.	4036
PERFORMANCE CRITERIA	The person performing this task must be able to identify vitamin feeds on different breeds according to the characteristics and value of different vitamin feeds.		
RANGE STATEMENT	The task can be performed in the feeding workshop of the farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Balance; 2. Personal medical protective equipment: disposable gloves, protective suit, mask, headgear, etc.;; 3. Medicine spoon; 4. Scissors; 5. Record book, pen; 6. Sample sack; 7. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Select appropriate tools and equipment for this task; 3. Conduct correct classification of vitamins; 4. Evaluate the nutritional value of various vitamin feeds; 5. Clean the tools, equipment and workplaces; 6. Safely arrange and store the tools and equipment.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Conduct correct supplementation of commonly-used vitamin feeds in different breeds; 1.2 Conduct reasonable classification of vitamin feeds. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Feeding value of vitamin feeds; 2.2 Significance of vitamin feeds for animal growth. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Concepts of vitamin feeds;	

	3.2 Types of vitamin feeds. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Calculating skills; 4.6 Communication skills; 4.7 Time management skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The vitamin for livestock and poultry identified according to the characteristics and value of different vitamin feeds..
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Use of stockbreeding machine for classification of feed ingredients; 2. Development and marketing of feed; 3. Production cost accounting; 4. Nutritional value of common livestock products.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	CONDUCT IDENTIFICATION OF THE FEED ADDITIVES	DUTY NO.	404
TASK TITLE	IDENTIFY THE NUTRITIOUS FEED ADDITIVES	TASK NO.	4041
PERFORMANCE CRITERIA	The person performing this task must be able to take samples of nutritious feed additives and identify them according to the standard characteristics for different additives.		
RANGE STATEMENT	The task can be performed in the farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Personal medical protective equipment: disposable gloves, mask, etc.;; 2. Sampling drill; 3. Sample sack; 4. Record book, pen; 5. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Select appropriate tools and equipment for this task; 3. Use a sampling drill to collect samples of nutritional additives; 4. Identify nutritious feed additives such as amino acids, vitamins and trace elements; 4. Clean the tools, equipment and workplaces; 5. Safely arrange and store the tools and equipment.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Collect samples of nutritious feed additives; 1.2 Identify the nutritious feed additives. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Identification methods of nutritious feed additives; 2.2 Sampling points of nutritious feed additives. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Types and properties of nutritious feed additives; 3.2 Reasonable use of nutritious feed additives such as amino acids, vitamins and trace elements.	

	4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Memory skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Different nutritious feed additives are identified according to the standard characteristics of different nutritious feed additives.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Livestock and poultry feeding standards; 2. Moral and ethical norms; 3. Health and safety; 4. Animal growth cycle.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	CONDUCT IDENTIFICATION OF THE FEED ADDITIVES	DUTY NO.	404
TASK TITLE	IDENTIFY THE NON-NUTRITIOUS FEED ADDITIVES	TASK NO.	4042
PERFORMANCE CRITERIA	The person performing this task must be able to take samples of non-nutritious feed additives and identify them according to the standard characteristics for different additives.		
RANGE STATEMENT	The task can be performed in the farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Personal medical protective equipment: disposable gloves, mask, etc.;; 2. Sampling drill; 3. Sample sack; 4. Record book, pen; 5. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Select appropriate tools and equipment for this task; 3. Use a sampling drill to collect samples of non-nutritional additives; 4. Identify non-nutritious feed additives such as probiotic preparations, enzyme preparations, anti-mold agents, and mildew-removing agents; 4. Clean the tools, equipment and workplaces; 5. Safely arrange and store the tools and equipment.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Collect samples of the non-nutritious feed additives; 1.2 Identify the non-nutritious feed additives. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Sampling points of different nutritious feed additives; 2.2 Reasonable use of nutritious feed additives such as probiotic preparations, enzyme preparations, anti-mold agents, and mildew-removing agents. 3.0 Theories The person performing this task must be able to explain the following:	

	3.1 Types and properties of different non-nutritious feed additives; 3.2 Identification methods of different non-nutritious feed additives. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Memory skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	Different non-nutritious feed additives are identified according to the standard characteristics of different nutritious feed additives..
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Moral and ethical norms; 2. Health and safety; 3. Animal growth cycle.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	IMPLEMENT FARM DATA COLLECTION AND ANALYSIS	DUTY NO.	405
TASK TITLE	COLLECT AND ANALYZE FARM DATA	TASK NO.	4051
PERFORMANCE CRITERIA	The person performing this task must be able to collect and analyse farm data, according to the standard data collection methods and analysis.		
RANGE STATEMENT	The task can be performed in the farm under the supervision of animal breeding engineers or senior technicians, and animal scientist. The tools and equipment to be used include: 1. Protective equipment: medical rubber gloves, protective suit, mask, hat, rubber boots (shoes); 2. Data record form; 3. Data record book; 4. Electronic computer; 5. Data analysis software; 6. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Prepare farm data statistical tables; 3. Classify farm production data, breeding data, cost management data, material management data; 4. Correctly record various data of the farm; 5. Use electronic computers to sort out various data of the farm; 6. Conduct the preliminary analysis of various data of the farm by using electronic computers; 7. Form a farm data analysis report.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Prepare Data record forms; 1.2 Fill in the data accurately and standardly; 1.3 Sort and classify farm production data, breeding data, cost management data, material management data; 1.4 Use electronic computers to organise data; 1.5 Preliminarily analyse data. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Various data components of the farm; 2.2 Basic principles of statistics; 2.3 The role of electronic computers in data collection on farms.	

	3.0 Theories The person performing this task must be able to explain the following: 3.1 Fundamentals of Livestock Economics; 3.2 Classification of farm data; 3.3 Requirements for the preparation of farm data collection forms; 3.4 Specifications for filling in farm data; 3.5 Basic application of electronic computers. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Report writing skills; 4.5 Time management; 4.6 Information technology application skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The farm data collected and analysed according to the standard data collection methods and analysis.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Occupational health and safety; 2. Livestock and poultry feeding and nutrition; 3. Marketing; 4. Agricultural laws and regulations; 5. National or industry standards.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	MANAGE THE DISINFECTION OF LIVESTOCK AND POULTRY	DUTY NO.	406
TASK TITLE	OPERATE THE DISINFECTION FACILITIES	TASK NO.	4061
PERFORMANCE CRITERIA	The person performing this task must be able to accurately operate the disinfection facilities according to the standards and requirements of farm disinfections.		
RANGE STATEMENT	The task can be performed in the farm under the supervision of animal breeding engineers or senior technicians, and animal scientist. The tools and equipment to be used include: 1. Equipment: High-pressure cleaner, spray sterilizer, etc.;; 2. Facilities: Disinfection pool (pad, basin), disinfection room, shower room, disinfection channel, etc.;; 3. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Select appropriate tools and equipment for this task; 3. Maintain facilities and equipment.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Use disinfection facilities and equipment. 1.2 Maintain disinfection facilities and equipment. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Rules for the use of disinfection facilities and equipment. 3.0 Theories The person performing this task must be able to explain the following: 3.1 Instructions for the use of disinfection facilities and equipment; 3.2 Precautions for the use of disinfection facilities and equipment.	

	4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Problem-solving skills; 4.5 Biosecurity skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The disinfection facilities are operated according to the standards and requirements of farm disinfections.
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Implementation of laws and regulations on disinfection systems; 2. The construction process of disinfection facilities and equipment.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	MANAGE THE DISINFECTION OF LIVESTOCK AND POULTRY	DUTY NO.	406
TASK TITLE	CARRY OUT PREPARATION OF DISINFECTANTS	TASK NO.	4062
PERFORMANCE CRITERIA	The person performing this task must be able to prepare suitable disinfectants according to the disinfection requirements and the standard disinfectants preparation guidelines		
RANGE STATEMENT	The task can be performed in the farm under the supervision of animal breeding engineers or senior technicians, and animal scientist. The tools and equipment to be used include: 1. Weighing equipment: balance, measuring cylinder, beaker, etc.;; 2. Commonly-used disinfectants: glutaraldehyde, potassium hydrogen persulfate, etc.;; 3. Device: glass rod, etc. 4. Safety gear.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Determine the disinfection method; 3. Determine the disinfection procedures and steps; 4. Use weighing instruments and be able to do calculations.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Calculate the amount and ratio of disinfectant used; 1.2 Prepare disinfectants. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 Principle of disinfectant dissolution. 3.0 Theories The person performing this task must be able to explain the following: 3.1 The concept for use of disinfectants; 3.2 The reasons for use of disinfectants. 4.0 Essential skills	

	4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Problem-solving skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The preparations of disinfectants carried out according to the disinfection requirements and the standard disinfectants preparation guidelines
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Occupational health and safety; 2. Storage of disinfectants; 3. Waste disposal.

OCCUPATION	ANIMAL BREEDING TECHNICIAN	OCCUPATION CODE	
DUTY TITLE	MANAGE THE DISINFECTION OF LIVESTOCK AND POULTRY	DUTY NO.	406
TASK TITLE	CARRY OUT FARM DISINFECTION	TASK NO.	4063
PERFORMANCE CRITERIA	The person performing this task must be able to carry out the farm disinfection according to the standards and requirements of farm disinfection.		
RANGE STATEMENT	The task can be performed in the farm under the supervision of animal breeding engineers or senior technicians. The tools and equipment to be used include: 1. Protective equipment: personal medical protective equipment, such as disposable long-arm gloves, protective suit, masks, headgear and disposable medical gloves; 2. Disinfection facilities and equipment: disinfection pool (pad, basin), disinfection room, spray sterilizer, flame disinfection equipment, etc.;; 3. Disinfectants: glutaraldehyde, potassium hydrogen persulfate, etc.		
EVIDENCE REQUIREMENT			
PRACTICAL PERFORMANCE		UNDERPINNING KNOWLEDGE	
The person performing this task must be able to do the following: 1. Abide by the health and safety regulations when performing this task; 2. Select appropriate tools and equipment for this task; 3. Carry out scientific and effective disinfection and achieve disinfection effectiveness.		Detailed knowledge about: 1.0 Methods The person performing this task must be able to explain how to: 1.1 Use disinfection facilities and equipment, and disinfect them correctly; 1.2 Prepare chemical disinfectants; 1.3 Conduct effective disinfection. 2.0 Principles The person performing this task must be able to explain the following principles: 2.1 The purpose and significance of disinfection; 2.2 Correct use of disinfection facilities and equipment. 3.0 Theories The person performing this task must be able to explain the following:	

	3.1 Principles and methods of different disinfection methods; 3.3 Disinfection emergency measures; 3.4 Application precautions for various methods. 4.0 Essential Skills 4.1 Learning skills; 4.2 Communication skills; 4.3 Teamwork skills; 4.4 Problem-solving skills; 4.5 Hazardous skills.
DESCRIPTION OF THE END PRODUCT / SERVICE	The farm disinfection carried out according to the standards and requirements of farm disinfection
CIRCUMSTANTIAL KNOWLEDGE	Detailed knowledge about: 1. Scope of duties; 2. Code of conduct; 3. Research ethics; 4. Laws, regulations and policies applicable to the agribusiness sector.

**APPENDIX 1: DACUM CHARTS FOR ANIMAL BREEDING TECHNICIAN -
NTA LEVEL 4**

DUTIES	TASKS	ENABLERS
1.0 Perform estrus identification of livestock and poultry	1.1 Determine the reed sex.	General skills and knowledge • Personal protection • Livestock and poultry breed identification • Effects of reproductive hormones livestock and poultry • Reproductive hormone preparation • Intramuscular injection • Intravenous injection • Vaginal plug installation • Livestock and poultry feeding Management Tools and equipment • Protective suit • Mask • Hat • Rubber boots • Long tweezers • Nail clipper • Vaginal speculum • Head-mounted searchlight • Syringe • Vaginal plug • CIDR placer • PRID placer • Medical rubber gloves • Disposable long-arm gloves • Marker crayon • Pig driving board Materials • Reproductive hormone: GnRH, FSH, LH, HCG, PMSG, PG, P4 (CIDR, PRID), OXT
	1.2 Regulate reproductive hormones.	
	1.3 Carry out estrus identification of cattle and sheep and goat.	
	1.4 Carry out estrus identification of pigs.	

DUTIES	TASKS	ENABLERS
		• Other drugs: 75% alcohol, potassium permanganate, bromogeramine, iodine tincture, cotton ball, towel, lubricant Requirements for employees • Sense of responsibility • Time management • Working hard • Keeping promises • Good morals • Integrity • Self-motivation
2.0 Collect the semen of male livestock and poultry	2.1 Collect the semen from livestock.	General skills and knowledge • Knowledge of livestock and poultry breed identification • Basic knowledge of livestock and poultry physiology • Knowledge of livestock and poultry feeding management • Training skills of male livestock and poultry • Disinfection skills of sperm collection equipment • Installation skills of artificial vagina • Semen collection skills of artificial vagina • Semen collection skills by hand holding method • Semen collection skills by massage method • Semen collection skills Tools and equipment • Computer • Commonly-used equipment and tools for semen collection • Basic equipment for farm management
	2.2 Collect the semen from poultry.	

DUTIES	TASKS	ENABLERS
		- Recording software such as excel Materials - Commonly-used equipment and tools for semen collection - Male livestock and poultry Requirements for employees - Time management - Working hard - Keeping promises - Good morals - Patience and meticulousness - Solidarity and cooperation - Being trustworthy - Self-motivation
3.0 Perform identification of feed ingredients	3.1 Identify of the coarse fodder.	General skills and knowledge - Classification of feed ingredients - Knowledge of livestock and poultry feeding management - Problem-solving skills - Communication skills - Safety skills Tools and equipment - Personal medical protective equipment: disposable gloves, protective suit, mask, headgear, etc. - Ensilage cutter - Sampler - Balance Materials - Porcelain plate - Tweezers - Scissors - Record book, pen - Sample sack
	3.2 Identify the green forage.	
	3.3 Identify the energy fodder.	
	3.4 Identify the protein feeds.	
	3.5 Identify minerals.	
	3.6 Identify vitamin feeds.	

DUTIES	TASKS	ENABLERS
		• Feed ingredient Requirements for employees • Time management • Working hard • Keeping promises • Good morals • Being trustworthy • Self-motivation
4.0 Conduct identification of the feed additives	4.1 Identify the nutritious feed additives.	General skills and knowledge • Classification of feed additives • Knowledge of livestock and poultry feeding management • Problem-solving skills • Communication skills • Safety skills Tools and equipment • Personal medical protective equipment: disposable gloves, mask, etc. • Sampling drill Materials • Record book, pen • Sample sack • Feed additives Requirements for employees • Time management • Working hard • Keeping promises • Good morals • Being trustworthy • Self-motivation
	4.2 Identify the non-nutritious feed additives.	
5.0 Implement farm data collection	5.1 Collect and analyse farm data.	General skills and knowledge • Personal protection • Health and safety

DUTIES	TASKS	ENABLERS
		• Knowledge of statistics • Computer application • Livestock and poultry feeding Management Tools and equipment • Medical rubber gloves • Protective suit • Mask • Hat • Rubber boots • Data record book • Computer • Data analysis software Materials • Disinfection and epidemic prevention drugs: 75% alcohol, potassium permanganate, bromogeramine, iodine tincture, cotton ball, towel Requirements for employees • Sense of responsibility • Time management • Working hard • Keeping promises • Good morals • Integrity • Self-motivation
6.0 Manage the disinfection of livestock and poultry	6.1 Operate the disinfection facilities	General skills and knowledge • Types of disinfectants • Selection of disinfection methods • Problem-solving skills • Communication skills • Safety skills Tools and equipment • Spray sterilizer
	6.2 Carry out preparation of disinfectants	
	6.3 Carry out farm disinfection.	

DUTIES	TASKS	ENABLERS
		• Flame disinfection instruments • High-pressure cleaner • Disinfection pool (pad, basin) • Disinfection room • Shower room • Disinfection channel • Balance • Measuring cylinder • Beaker Materials • Disposable gloves • Protective suit • Mask • Headgear • Disinfectants: glutaraldehyde, potassium hydrogen persulfate, etc. Requirements for employees • Working hard • Adhering to the principle • Keeping promises • Good morals • Self-motivation