

TRAINING REGULATIONS



ARTIFICIAL INSEMINATION (Large Ruminants) NC II

AGRICULTURE AND FISHERY SECTOR

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Superhighway, Taguig City, Metro Manila

TABLE OF CONTENTS

AGRI-FISHERY SECTOR

ARTIFICIAL INSEMINATION (Large Ruminants) NC II

		Page/s
Section 1	ARTIFICIAL INSEMINATION (Large Ruminants) NC II QUALIFICATION	1
Section 2	COMPETENCY STANDARDS	
	• Basic Competencies	2 – 13
	• Common Competencies	14 – 22
	• Core Competencies	23 – 35
	• Elective Competencies	36 – 38
Section 3	TRAINING STANDARDS	
	3.1. Curriculum Design	
	3.1.1. Basic	39 - 40
	3.1.2. Common	40
	3.1.3. Core	41
	3.1.4. Elective	41
	3.2. Training Delivery	42
	3.3. Trainee Entry Requirements	43
	3.4. List of Tools, Equipment and Materials	43 – 44
	3.5. Training Facilities	45
	3.6. Trainers' Qualifications	45
	3.7. Institutional Assessment	45
Section 4	NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS	46
	COMPETENCY MAP	47
	DEFINITION OF TERMS	48 – 50
	ACKNOWLEDGEMENTS	51– 55

TRAINING REGULATIONS FOR ARTIFICIAL INSEMINATION (LARGE RUMINANTS) NC II

Section 1 ARTIFICIAL INSEMINATION NC II QUALIFICATION

The **ARTIFICIAL INSEMINATION (Large Ruminants) NC II** Qualification consists of competencies that a person must achieve to establish readiness for artificial insemination, prepare for artificial insemination (AI) operation, perform artificial insemination (AI) and prepare artificial insemination (AI) documentations and reports. It has an elective competency to conduct artificial insemination awareness for clientele.

This Qualification is packaged from the competency map of the Agri-Fishery Sector as shown in Annex A.

The units of competency comprising this qualification includes the following:

Code	BASIC COMPETENCIES
500311105	Participate in workplace communication
500311106	Work in a team environment
500311107	Practice career professionalism
500311108	Practice occupational health and safety procedures

Code	COMMON COMPETENCIES
AGR321201	Apply safety measures in farm operations
AGR321202	Use farm tools and equipment
AGR321203	Perform estimation and calculations

Code	CORE COMPETENCIES
AGR621205	Establish readiness for artificial insemination
AGR621206	Prepare for artificial insemination (AI) operation
AGR621207	Perform artificial insemination (AI)
AGR621208	Prepare artificial insemination (AI) documentations and reports

Code	ELECTIVE COMPETENCY
AGR621209	Conduct artificial insemination awareness for clientele

A person who has achieved this Qualification is competent to be:

- **Artificial Insemination Technician**
- **Artificial Inseminator**

SECTION 2

COMPETENCY STANDARDS

These guidelines are set to provide the Technical Vocational Education and Training (TVET) providers with information and other important requirements to consider when designing training programs for **ARTIFICIAL INSEMINATION (LARGE RUMINANTS) NC II**.

BASIC COMPETENCIES

UNIT OF COMPETENCY : PARTICIPATE IN WORKPLACE COMMUNICATION

UNIT CODE : 500311105

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized</i> fonts are elaborated in the Range of Variables
1. Obtain and convey workplace information	1.1 Specific and relevant information is accessed from appropriate sources 1.2 Effective questioning , active listening and speaking skills are used to gather and convey information 1.3 Appropriate medium is used to transfer information and ideas 1.4 Appropriate non- verbal communication is used 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed 1.6 Defined workplace procedures for the location and storage of information are used 1.7 Personal interaction is carried out clearly and concisely
2. Participate in workplace meetings and discussions	2.1 Team meetings are attended on time 2.2 Own opinions are clearly expressed and those of others are listened to without interruption 2.3 Meeting inputs are consistent with the meeting purpose and established protocols 2.4 Workplace interactions are conducted in a courteous manner 2.5 Questions about simple routine workplace procedures and matters concerning working conditions of employment are asked and responded to 2.6 Meetings outcomes are interpreted and implemented
3. Complete relevant work related documents	3.1 Range of forms relating to conditions of employment are completed accurately and legibly 3.2 Workplace data is recorded on standard workplace forms and documents 3.3 Basic mathematical processes are used for routine calculations 3.4 Errors in recording information on forms/ documents are identified and properly acted upon 3.5 Reporting requirements to supervisor are completed according to organizational guidelines

RANGE OF VARIABLES

VARIABLE	RANGE
1. Appropriate sources	1.1. Team members 1.2. Suppliers 1.3. Trade personnel 1.4. Local government 1.5. Industry bodies
2. Medium	2.1. Memorandum 2.2. Circular 2.3. Notice 2.4. Information discussion 2.5. Follow-up or verbal instructions 2.6. Face to face communication
3. Storage	3.1. Manual filing system 3.2. Computer-based filing system
4. Forms	4.1. Personnel forms, telephone message forms, safety reports
5. Workplace interactions	5.1. Face to face 5.2. Telephone 5.3. Electronic and two way radio 5.4. Written including electronic, memos, instruction and forms, non-verbal including gestures, signals, signs and diagrams
6. Protocols	6.1. Observing meeting 6.2. Compliance with meeting decisions 6.3. Obeying meeting instructions

EVIDENCE GUIDE

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Prepared written communication following standard format of the organization</p> <p>1.2 Accessed information using communication equipment</p> <p>1.3 Made use of relevant terms as an aid to transfer information effectively</p> <p>1.4 Conveyed information effectively adopting the formal or informal communication</p>
<p>2. Required Knowledge and Attitudes</p>	<p>2.1 Effective communication</p> <p>2.2 Different modes of communication</p> <p>2.3 Written communication</p> <p>2.4 Organizational policies</p> <p>2.5 Communication procedures and systems</p> <p>2.6 Technology relevant to the enterprise and the individual's work responsibilities</p>
<p>3. Required Skills</p>	<p>3.1 Follow simple spoken language</p> <p>3.2 Perform routine workplace duties following simple written notices</p>
<p>4. Resource Implications</p>	<p>4.1 Fax machine</p> <p>4.2 Telephone</p> <p>4.3 Writing materials</p> <p>4.4 Internet</p>
<p>5. Methods of Assessment</p>	<p>5.1 Direct Observation</p> <p>5.2 Oral interview and written test</p>
<p>6. Context of Assessment</p>	<p>6.1 Competency may be assessed individually in the actual workplace or through accredited institution</p>

UNIT OF COMPETENCY: WORK IN TEAM ENVIRONMENT

UNIT CODE : 500311106

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes to identify role and responsibility as a member of a team.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized</i> fonts are elaborated in the Range of Variables
1. Describe team role and scope	1.1 The role and objective of the team is identified from available sources of information 1.2 Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources
2. Identify own role and responsibility within team	2.1 Individual role and responsibilities within the team environment are identified 2.2 Roles and responsibility of other team members are identified and recognized 2.3 Reporting relationships within team and external to team are identified
3. Work as a team member	3.1 Effective and appropriate forms of communications used and interactions undertaken with team members who contribute to known team activities and objectives 3.2 Effective and appropriate contributions made to complement team activities and objectives, based on individual skills and competencies and workplace context 3.3 Observed protocols in reporting using standard operating procedures 3.4 Contribute to the development of team work plans based on an understanding of team's role and objectives and individual competencies of the members.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Role and objective of team	1.1 Work activities in a team environment with enterprise or specific sector 1.2 Limited discretion, initiative and judgment maybe demonstrated on the job, either individually or in a team environment
2. Sources of information	2.1 Standard operating and/or other workplace procedures 2.2 Job procedures 2.3 Machine/equipment manufacturer's specifications and instructions 2.4 Organizational or external personnel 2.5 Client/supplier instructions 2.6 Quality standards 2.7 OHS and environmental standards
3. Workplace context	3.1 Work procedures and practices 3.2 Conditions of work environments 3.3 Legislation and industrial agreements 3.4 Standard work practice including the storage, safe handling and disposal of chemicals 3.5 Safety, environmental, housekeeping and quality guidelines

EVIDENCE GUIDE

<p>1. Critical aspects of competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Operated in a team to complete workplace activity 1.2 Worked effectively with others 1.3 Conveyed information in written or oral form 1.4 Selected and used appropriate workplace language 1.5 Followed designated work plan for the job 1.6 Reported outcomes
<p>2. Required Knowledge and Attitudes</p>	<ul style="list-style-type: none"> 2.1 Communication process 2.2 Team structure 2.3 Team roles 2.4 Group planning and decision making
<p>3. Required Skills</p>	<ul style="list-style-type: none"> 3.1 Communicate appropriately, consistent with the culture of the workplace
<p>4. Resource Implications</p>	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 4.2 Materials relevant to the proposed activity or tasks
<p>5. Methods of Assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 5.1 Observation of the individual member in relation to the work activities of the group 5.2 Observation of simulation and or role play involving the participation of individual member to the attainment of organizational goal 5.3 Case studies and scenarios as a basis for discussion of issues and strategies in teamwork
<p>6. Context for Assessment</p>	<ul style="list-style-type: none"> 6.1 Competency may be assessed in workplace or in a simulated workplace setting 6.2 Assessment shall be observed while task are being undertaken whether individually or in group

UNIT OF COMPETENCY: PRACTICE CAREER PROFESSIONALISM

UNIT CODE : 500311107

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in promoting career growth and advancement.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized</i> fonts are elaborated in the Range of Variables
1. Integrate personal objectives with organizational goals	1.1 Personal growth and work plans are pursued towards improving the qualifications set for the profession 1.2 Intra- and interpersonal relationships is are maintained in the course of managing oneself based on performance evaluation 1.3 Commitment to the organization and its goal is demonstrated in the performance of duties
2. Set and meet work priorities	2.1 Competing demands are prioritized to achieve personal, team and organizational goals and objectives. 2.2 Resources are utilized efficiently and effectively to manage work priorities and commitments 2.3 Practices along economic use and maintenance of equipment and facilities are followed as per established procedures
3. Maintain professional growth and development	3.1 Trainings and career opportunities are identified and availed of based on job requirements 3.2 Recognitions are -sought/received and demonstrated as proof of career advancement 3.3 Licenses and/or certifications relevant to job and career are obtained and renewed

RANGE OF VARIABLES

VARIABLE	RANGE
1. Evaluation	1.1 Performance Appraisal 1.2 Psychological Profile 1.3 Aptitude Tests
2. Resources	2.1 Human 2.2 Financial 2.3 Technology 2.3.1 Hardware 2.3.2 Software
3. Trainings and career opportunities	3.1 Participation in training programs 3.1.1 Technical 3.1.2 Supervisory 3.1.3 Managerial 3.1.4 Continuing Education 3.2 Serving as Resource Persons in conferences and workshops
4. Recognitions	4.1 Recommendations 4.2 Citations 4.3 Certificate of Appreciations 4.4 Commendations 4.5 Awards 4.6 Tangible and Intangible Rewards
5. Licenses and/or certifications	5.1 National Certificates 5.2 Certificate of Competency 5.3 Support Level Licenses 5.4 Professional Licenses

EVIDENCE GUIDE

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Attained job targets within key result areas (KRAs) 1.2 Maintained intra - and interpersonal relationship in the course of managing oneself based on performance evaluation 1.3 Completed trainings and career opportunities which are based on the requirements of the industries 1.4 Acquired and maintained licenses and/or certifications according to the requirement of the qualification
<p>2. Required Knowledge and Attitudes</p>	<ul style="list-style-type: none"> 2.1 Work values and ethics (Code of Conduct, Code of Ethics, etc.) 2.2 Company policies 2.3 Company-operations, procedures and standards 2.4 Fundamental rights at work including gender sensitivity 2.5 Personal hygiene practices
<p>3. Required Skills</p>	<ul style="list-style-type: none"> 3.1 Appropriate practice of personal hygiene 3.2 Intra and Interpersonal skills 3.3 Communication skills
<p>4. Resource Implications</p>	<p>The following resources MUST be provided:</p> <ul style="list-style-type: none"> 4.1 Workplace or assessment location 4.2 Case studies/scenarios
<p>5. Methods of Assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 5.1 Portfolio Assessment 5.2 Interview 5.3 Simulation/Role-plays 5.4 Observation 5.5 Third Party Reports 5.6 Exams and Tests
<p>6. Context of Assessment</p>	<ul style="list-style-type: none"> 6.1 Competency may be assessed in the work place or in a simulated work place setting

UNIT OF COMPETENCY : PRACTICE OCCUPATIONAL HEALTH AND SAFETY PROCEDURES

UNIT CODE : 500311108

UNIT DESCRIPTOR : This unit covers the outcomes required to comply with regulatory and organizational requirements for occupational health and safety.

ELEMENT	PERFORMANCE CRITERIA
1. Identify hazards and risks	<p><i>Italicized</i> fonts are elaborated in the Range of Variables</p> <p>1.1 Safety regulations and workplace safety and hazard control practices and procedures are clarified and explained based on organization procedures</p> <p>1.2 Hazards/risks in the workplace and their corresponding indicators are identified to minimize or eliminate risk to co-workers, workplace and environment in accordance with organization procedures</p> <p>1.3 Contingency measures during workplace accidents, fire and other emergencies are recognized and established in accordance with organization procedures</p>
2. Evaluate hazards and risks	<p>2.1 Terms of maximum tolerable limits which when exceeded will result in harm or damage are identified based on threshold limit values (TLV)</p> <p>2.2 Effects of the hazards are determined</p> <p>2.3 OHS issues and/or concerns and identified safety hazards are reported to designated personnel in accordance with workplace requirements and relevant workplace OHS legislation</p>
3. Control hazards and risks	<p>3.1 Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace are consistently followed</p> <p>3.2 Procedures for dealing with workplace accidents, fire and emergencies are followed in accordance with organization OHS policies</p> <p>3.3 Personal protective equipment (PPE) is correctly used in accordance with organization OHS procedures and practices</p> <p>3.4 Appropriate assistance is provided in the event of a workplace emergency in accordance with established organization protocol</p>
4. Maintain OHS awareness	<p>4.1 Emergency-related drills and trainings are participated in as per established organization guidelines and procedures</p> <p>4.2 OHS personal records are completed and updated in accordance with workplace requirements</p>

RANGE OF VARIABLES

VARIABLE	RANGE
1. Safety regulations	May include but are not limited to: 1.1 Clean Air Act 1.2 Building code 1.3 National Electrical and Fire Safety Codes 1.4 Waste management statutes and rules 1.5 Philippine Occupational Safety and Health Standards 1.6 DOLE regulations on safety legal requirements 1.7 ECC regulations
2. Hazards/Risks	May include but are not limited to: 2.1 Physical hazards – impact, illumination, pressure, noise, vibration, temperature, radiation 2.2 Biological hazards- bacteria, viruses, plants, parasites, mites, molds, fungi, insects 2.3 Chemical hazards – dusts, fibers, mists, fumes, smoke, gasses, vapors 2.4 Ergonomics 2.4.1 Psychological factors – over exertion/ excessive force, awkward/static positions, fatigue, direct pressure, varying metabolic cycles 2.4.2 Physiological factors – monotony, personal relationship, work out cycle
3. Contingency measures	May include but are not limited to: 3.1 Evacuation 3.2 Isolation 3.3 Decontamination 3.4 (Calling designed) emergency personnel
4. PPE	May include but are not limited to: 4.1 Mask 4.2 Gloves 4.3 Goggles 4.4 Hair Net/cap/bonnet 4.5 Face mask/shield 4.6 Ear muffs 4.7 Apron/Gown/coverall/jump suit 4.8 Anti-static suits
5. Emergency-related drills and training	5.1 Fire drill 5.2 Earthquake drill 5.3 Basic life support/CPR 5.4 First aid 5.5 Spillage control 5.6 Decontamination of chemical and toxic 5.7 Disaster preparedness/management
6. OHS personal records	6.1 Medical/Health records 6.2 Incident reports 6.3 Accident reports 6.4 OHS-related training completed

EVIDENCE GUIDE

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Explained clearly established workplace safety and hazard control practices and procedures 1.2 Identified hazards/risks in the workplace and its corresponding indicators in accordance with company procedures 1.3 Recognized contingency measures during workplace accidents, fire and other emergencies 1.4 Identified terms of maximum tolerable limits based on threshold limit value- TLV. 1.5 Followed Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace 1.6 Used Personal Protective Equipment (PPE) in accordance with company OHS procedures and practices 1.7 Completed and updated OHS personal records in accordance with workplace requirements
<p>2. Required Knowledge and Attitudes</p>	<ul style="list-style-type: none"> 2.1 OHS procedures and practices and regulations 2.2 PPE types and uses 2.3 Personal hygiene practices 2.4 Hazards/risks identification and control 2.5 Threshold Limit Value -TLV 2.6 OHS indicators 2.7 Organization safety and health protocol 2.8 Safety consciousness 2.9 Health consciousness
<p>3. Required Skills</p>	<ul style="list-style-type: none"> 3.1 Practice of personal hygiene 3.2 Hazards/risks identification and control skills 3.3 Interpersonal skills 3.4 Communication skills
<p>4. Resource Implications</p>	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> 4.1 Workplace or assessment location 4.2 OHS personal records 4.3 PPE 4.4 Health records
<p>5. Methods of Assessment</p>	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> 5.1 Portfolio Assessment 5.2 Interview 5.3 Case Study/Situation
<p>6. Context for Assessment</p>	<ul style="list-style-type: none"> 6.1 Competency may be assessed in the work place or in a simulated work place setting

COMMON COMPETENCIES

UNIT TITLE : Apply Safety Measures in Farm Operations

UNIT CODE : AGR321201

UNIT DESCRIPTOR: This unit covers the knowledge, skills and attitudes required to perform safety measures effectively and efficiently. It includes identifying areas, tools, materials, time and place in performing safety measures.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized fonts are elaborated in the Range of Variables</i>
1. Determine areas of concern for safety measures	1.1 Work tasks are identified in line with farm operations 1.2 Place for safety measures are determined in line with farm operations 1.3 Time for safety measures are determined in line with farm operations 1.4 Appropriate tools, materials and outfits are prepared in line with job requirements
2. Apply appropriate safety measures	2.1 Tools and materials are used according to specifications and procedures 2.2 Outfits are worn according to farm requirements 2.3 Effectivity/shelf life/expiration of materials are strictly observed 2.4 Emergency procedures are known and followed to ensure a safework requirement 2.5 Hazards in the workplace are identified and reported in line with farm guidelines
3. Safekeep/dispose tools, materials and outfit	3.1 Used tools and outfit are cleaned after use and stored in designated areas 3.2 Unused materials are properly labeled and stored according to manufacturers recommendation and farm requirements 3.3 Waste materials are disposed according to manufacturers, government and farm requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Work tasks	Work task may be selected from any of the subsectors: 1.1 Aquaculture 1.2 Animal Production 1.3 Crop Production 1.4 Post-harvest 1.5 Agri-marketing 1.6 Farm Equipment
2. Place	2.1 Animal pens, cages, barns 2.2 Fish ponds, cages 2.3 Stock room/storage areas/warehouse 2.4 Field/farm/orchard
3. Time	3.1 Vaccination and medication period 3.2 Fertilizer and pesticides application 3.3 Feed mixing and feeding 3.4 Harvesting and hauling 3.5 Cleaning, sanitizing and disinfecting 3.6 Dressing, butchering and castration
4. Tools, materials and outfits	4.1 Tools 4.1.1 Wrenches 4.1.2 Screw driver 4.1.3 Pliers 4.2 Materials 4.2.1 Bottles 4.2.2 Plastic 4.2.3 Bags 4.2.4 Syringe 4.3 Outfit 4.3.1 Masks 4.3.2 Gloves 4.3.3 Boots 4.3.4 Overall coats 4.3.5 Hat 4.3.6 Eye goggles
5. Emergency procedures	5.1 Location of first aid kit 5.2 Evacuation 5.3 Agencies contract 5.4 Farm emergency procedures
6. Waste materials	6.1 Animal manure 6.2 Waste water 6.3 Syringes 6.4 Unused farm chemicals e.g. pesticides, chemicals, fertilizers 6.5 Expired reagents 6.6 Dead animals
7. Hazards	7.1 Chemical 7.2 Electrical 7.3 Falls

EVIDENCE GUIDE

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Determined areas of concern for safety measures 1.2 Applied appropriate safety measures according to industry requirements 1.3 Prepared tools, materials and outfit needed 1.4 Performed proper disposal of used materials 1.5 Safekeep/cleaned tools, materials and outfit in designated facilities
<p>2. Required Knowledge and Attitude</p>	<ul style="list-style-type: none"> 2.1 Safety Practices <ul style="list-style-type: none"> 2.1.1 Implementation of regulatory controls and policies relative to treatment of area and application of chemicals 2.1.2 Proper disposal of waste materials 2.2 Codes and Regulations <ul style="list-style-type: none"> 2.2.1 Compliance to health program of DOH and DENR 2.2.2 Hazard identification 2.2.3 Emergency procedures 2.3 Tools & Equipment: Uses and Specification <ul style="list-style-type: none"> 2.3.1 Masks, gloves, boots, overall coats for health protection 2.4 Maintenance <ul style="list-style-type: none"> 2.4.1 Regular check-up and repair of tools, materials and outfit before and after use
<p>3. Required Skills</p>	<ul style="list-style-type: none"> 3.1 Ability to recognize effective tools, materials and outfit 3.2 Ready skills required to read labels, manuals and other basic safety information
<p>4. Method of Assessment</p>	<p>Competency in this unit must be assessed through:</p> <ul style="list-style-type: none"> 4.1 Practical demonstration 4.2 Third Party Report
<p>5. Resource Implications</p>	<ul style="list-style-type: none"> 5.1 Farm location 5.2 Tools, equipment and outfits appropriate in applying safety measures
<p>6. Context of Assessment</p>	<p>Assessment may occur in the workplace or in a simulated workplace or as part of a team under limited supervision</p>

UNIT TITLE : USE FARM TOOLS AND EQUIPMENT

UNIT CODE : AGR321202

UNIT DESCRIPTOR: This unit covers the knowledge, skills and attitudes required to use farm tools and equipment. It includes selection, operation and preventive maintenance of farm tools and equipment.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized fonts are elaborated in the Range of Variables</i>
1. Select and use farm tools	1.1 Identified appropriate farm tools according to requirement/use 1.2 Farm tools are checked for faults and defective tools reported in accordance with farm procedures 1.3 Appropriate tools and equipment are safely used according to job requirements and manufacturers conditions
2. Select and operate farm equipment	2.1 Identify appropriate <i>farm equipment</i> 2.2 Instructional manual of the farm tools and equipment are carefully read prior to operation 2.3 <i>Pre-operation check-up</i> is conducted in line with manufacturers manual 2.4 Faults in farm equipment are identified and reported in line with farm procedures 2.5 Farm equipment used according to its function 2.6 Followed safety procedures
3. Perform preventive maintenance	3.1 Tools and equipment are cleaned immediately after use in line with farm procedures 3.2 Routine check-up and maintenance are performed 3.3 Tools and equipment are stored in designated areas in line with farm procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Farm equipment	1.1 Engine 1.2 Pumps 1.3 Generators 1.4 Sprayers
2. Farm tools	2.1 Sickle 2.2 Cutters 2.3 Weighing scales 2.4 Hand tools 2.5 Measuring tools 2.6 Garden tools
3. Pre-operation check-up	3.1 Tires 3.2 Brake fluid 3.3 Fuel 3.4 Water 3.5 Oil 3.6 Lubricants 3.7 Battery

EVIDENCE GUIDE

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Correctly identified appropriate farm tools and equipment 1.2 Operated farm equipments according to manual specification 1.3 Performed preventive maintenance
<p>2. Required Knowledge and Attitudes</p>	<ul style="list-style-type: none"> 2.1 Safety Practices <ul style="list-style-type: none"> 2.1.1 Ideal good work habits to demonstrate to workers easy and safety standards during operation of farm equipment 2.2 Codes and Regulations <ul style="list-style-type: none"> 2.2.1 Environmental Compliance Certificate (ECG) 2.2.2 Effective work supervision in the operations of farm equipment 2.3 Tools & Equipment: Uses and Specification <ul style="list-style-type: none"> 2.3.1 Knowledge in calibrating and use of equipment 2.3.2 Safety keeping of equipments every after use 2.4 Maintenance <ul style="list-style-type: none"> 2.4.1 Regular upkeep of equipments 2.4.2 Preventive maintenance skills 2.5 Values <ul style="list-style-type: none"> 2.5.1 Positive outlook towards work 2.5.2 Possesses pre-emptive/anticipatory skills
<p>3. Required Skills</p>	<ul style="list-style-type: none"> 3.1 Ability to recognized defective farm equipment 3.2 Perform proper management practices of safety measures
<p>4. Method of Assessment</p>	<p>Competency in this unit must be assessed through:</p> <ul style="list-style-type: none"> 4.1 Direct observation 4.2 Practical demonstration 4.3 Third Party Report
<p>5. Resource Implications</p>	<ul style="list-style-type: none"> 5.1 Service/operational manual of farm tools and equipment 5.2 Tools and equipment 5.3 Farm implements
<p>6. Context of Assessment</p>	<ul style="list-style-type: none"> 6.1 Assessment may occur in the workplace or in a simulated workplace or as part of a team under limited supervision

UNIT TITLE : PERFORM ESTIMATION AND BASIC CALCULATION

UNIT CODE : AGR321203

UNIT DESCRIPTOR: This unit covers the knowledge, skills and attitudes required to perform basic workplace calculations.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized fonts are elaborated in the Range of Variables</i>
1. Perform estimation	1.1 Job requirements are identified from written or oral communications 1.2 Quantities of materials and resources required to complete a work task are estimated 1.3 The time needed to complete a work activity is estimated 1.4 Accurate estimate for work completion are made 1.5 Estimate of materials and resources are reported to appropriate person
2. Perform basic workplace calculation	2.1 Calculations to be made are identified according to job requirements 2.2 Correct method of calculation identified 2.3 System and units of measurement to be followed are ascertained 2.4 Calculation needed to complete work tasks are performed using the four basic process of addition, division, multiplication and subtraction 2.5 Calculate whole fraction, percentage and mixed when are used to complete the instructions 2.6 Number computed in self checked and completed for alignment

RANGE OF VARIABLES

VARIABLE	RANGE
1. Calculations	1.1 Quantity of feeds 1.2 Amount of fertilizer 1.3 Amount of medicines
2. Method of calculation	2.1 Addition 2.2 Subtraction 2.3 Multiplication 2.4 Division 2.5 Ratio and proportion
3. System of measurement	3.1 English 3.2 Metric
4. Units of measurement	4.1 Area 4.2 Volume 4.3 Weight

EVIDENCE GUIDE

1. Critical Aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Performed estimation 1.2 Performed basic workplace calculation 1.3 Applied corrective measures as maybe necessary
2. Required Knowledge and Attitudes	<ul style="list-style-type: none"> 2.1 Mathematics <ul style="list-style-type: none"> 2.1.1 Basic mathematical operations 2.1.2 Percentage and ratios 2.1.3 Unit Conversion 2.1.4 Basic accounting principles and procedures <ul style="list-style-type: none"> 2.1.1.1 Production cost 2.1.1.2 Sales 2.1.1.3 Accounts receivables/payables 2.2 Systems, Processes and Operations <ul style="list-style-type: none"> 2.2.1 Knowledge in different management practices and operational procedures 2.3 Values <ul style="list-style-type: none"> 2.3.1 Safety consciousness 2.3.2 Time consciousness and management 2.3.3 Cost consciousness 2.3.4 Precision
3. Required Skills	<ul style="list-style-type: none"> 3.1 Ability to perform basic calculation 3.2 Communicate effectively
4. Method of Assessment	<p>Competency in this unit must be assessed through:</p> <ul style="list-style-type: none"> 4.1 Practical demonstration 4.2 Written examination
5. Resource Implications	<ul style="list-style-type: none"> 5.1 Relevant tools and equipment for basic calculation 5.2 Recommended data
6. Context of Assessment	<ul style="list-style-type: none"> 6.1 Assessment may occur in the workplace or in a simulated workplace or as part of a team under limited supervision

CORE COMPETENCIES

- UNIT OF COMPETENCY** : **ESTABLISH READINESS FOR ARTIFICIAL INSEMINATION**
- UNIT CODE** : AGR621205
- UNIT DESCRIPTOR** : This unit covers the knowledge, skills and attitudes required to establish animal readiness for artificial insemination. It includes validation information on animal and assessing animal condition.

ELEMENT	PERFORMANCE CRITERIA
	<i>Italized</i> fonts are elaborated in the Range of Variable
1. Validate information on animal	1.1 Client's and animal's profile are recorded using the prescribed forms and accordance to standard operating procedures. 1.2 Transactions and coordination is made in accordance to communication etiquette... 1.3 Accurate interpretation and decision is made based on the gathered information
2. Assess animal condition	2.1 Physical condition of the animal is evaluated based on recommended standards. 2.2 Signs of estrus are monitored. 2.3 Animal is restrained using the prescribed chute. 2.4 Examination through rectal palpation is conducted to determine the animal's reproductive condition. 2.5 Task is performed without causing injuries to the animal, technician and others. 2.6 Accurate interpretation and decision is made based on the result of the actual examination.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Clients	1.1 Farmers 1.2 Ranchers 1.3 Animal enthusiasts/hobbyists
2. Animal's profile	2.1 Species 2.2 Identification number(ID number) 2.3 Age/date of birth 2.4 Approximate weight 2.5 Breed/Strain 2.6 Number of calving 2.7 Date of last calving 2.8 Dam and sire 2.9 Date of last estrus 2.10 Date of last breeding
3. Transactions and coordination	3.1 Face to face 3.2 Telephone conversation 3.3 E-mail 3.4 Text messaging
4. Communication etiquette	4.1 Politeness 4.2 Courtesy 4.3 Maintain composure 4.4 Patience
5. Recommended standards	5.1 Body weight 5.2 Body size 5.3 Body condition score 5.4 Apparently healthy 5.5 Breed standards
6. Signs of estrus	6.1 Swelling and redness of vulvar lips 6.2 Frequent urination 6.3 Bellowing 6.4 Standing still when mounted 6.5 Mucus discharge from the vulva 6.6 Restlessness 6.7 Loss of appetite 6.8 Trailing other animals
7. Animal's reproductive condition	7.1 Pregnant or not pregnant 7.2 In estrus or not in estrus 7.3 With or without abnormalities

EVIDENCE GUIDE

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Made accurate estrus detection</p>
<p>2. Required Knowledge and Attitudes</p>	<p>2.1. Knowledge, Theory, Practices and Systems Operations</p> <p>2.1.1. Pregnancy diagnosis</p> <p>2.1.2. Signs of estrus</p> <p>2.1.3. Species and breeds</p> <p>2.1.4. Animal conditions</p> <p>2.1.5. Practice 3Rs and 5S</p> <p>2.1.6. Program of work activities are implemented as scheduled</p> <p>2.2. Communication</p> <p>2.2.1. Preparation of inventory reports, production and performance record</p> <p>2.3. Mathematics and Mensuration</p> <p>2.3.1. Basic mathematical operations</p> <p>2.4. Safety Practices</p> <p>2.4.1. Proper application use of tools, farm implements and equipment.</p> <p>2.4.2. Wear appropriate PPE</p> <p>2.4.3. Proper waste disposal</p> <p>2.4.4. Personal protective paraphernalia or device</p> <p>2.4.5. Restraining procedures</p> <p>2.4.6. Chute construction</p> <p>2.5. Codes and Regulations</p> <p>2.5.1. Comply with DA, DENR, FPA Laws, Rules and Regulations</p> <p>2.6. Materials, Tools & Equipment: Uses, Specifications and Maintenance</p> <p>2.6.1. Tools and Equipment</p> <p>2.6.1.1. Can understand and follow instructional manuals</p> <p>2.6.1.2. Safe keeping of equipments every after use</p> <p>2.6.2. Materials</p> <p>2.6.2.1. Where to source good quality supplies, materials and equipment needed in the operation of the farm</p> <p>2.6.3. Maintenance</p> <p>2.6.3.1. Regular upkeep of equipments and facilities</p> <p>2.6.3.2. Preventive maintenance skills</p> <p>2.7 Breeding calendar</p> <p>2.8 Codes and Regulations</p> <p>2.8.1 Animal Welfare Act (RA 8485)</p> <p>2.9 Values</p> <p>2.9.1 Punctuality and patience</p> <p>2.9.2 Personal hygiene</p> <p>2.9.3 Ability to work well with others harmoniously</p>

3. Required Skills	3.1 Work safety 3.2 Arithmetic (Multiplication, Division, Addition and Subtraction) 3.3 Communicate effectively
4. Method of Assessment	Competency in this unit must be assessed through: 4.1 Oral interview 4.2 Practical demonstration with questioning 4.3 Observation with questioning 4.4 Third party report 4.5 Portfolio
5. Resource Implication	5.1 Practice animals 5.2 Farm facilities with chute 5.3 Artificial Insemination paraphernalia and supplies 5.4 Safety paraphernalia 5.5 Communication equipment 5.6 Forms
6. Context of Assessment	6.1 Competency may be assessed individually in the actual workplace or through accredited farms/institution.

UNIT OF COMPETENCY : **PREPARE FOR ARTIFICIAL INSEMINATION**

UNIT CODE : AGR621206

UNIT DESCRIPTOR : This unit covers the outcomes in the preparation and transport of AI equipment, tools, supplies and materials, including hygiene and safety requirements to ensure the integrity and quality of the semen prior to the AI procedure.

ELEMENT	PERFORMANCE CRITERIA <i>Italized</i> terms are elaborated in the Range of Variable
1. Carry-out preparatory activities	1.1 Sourcing of semen and LN ₂ supplies is made from the concerned partners 1.2 AI kit and LN ₂ tank with semen are prepared and secured during transport . 1.3 Preparation for AI is made in accordance with the hygiene and safety requirements . 1.4 Animal is restrained using suitable restraining procedures .
2. Maintain semen quality	2.1. Liquid nitrogen (LN ₂) level is monitored using the dip stick and replenished when necessary. 2.2. Semen inventory is done and replenished as needed based on recommended procedures . 2.3. Tasks are performed to ensure safety of the technician and other individuals.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Partners	The partners may include, but not limited to: 1.1 Philippine Carabao Center (PCC) 1.2 National Dairy Authority (NDA) 1.3 Bureau of Animal Industry (BAI) 1.4 Private Suppliers 1.5 Local government units (LGUs) 1.6 DA Regional Field Units (DA-RFU)
2. AI kit and other supplies	This may include, but not limited to the following: 2.1 AI Gun 2.2 Disposable AI sheath 2.3 Disposable shoulder length gloves 2.4 Surgical Gloves 2.5 Paper towels 2.6 Semen straw scissors/cutters 2.7 Semen straw forceps 2.8 Thermometer 2.9 Thawing jar 2.10 Lubricant 2.11 Disinfectant 2.12 Brush 2.13 Apron/ Cover all 2.14 Pail 2.15 Boots 2.16 Disposable plastic waste bags
3. Hygiene and safety requirements	This refers to the following: 3.1 Wear personal protective paraphernalia(i.e. cover all/ apron and boots) 3.2 Personal Hygiene(eg. no long nails) 3.3 Wear Shoulder-length and/or surgical gloves 3.4 Use of lubricant (soap)
4. Suitable restraining procedures.	This pertains to : 4.1 Chute measuring 2m L x 1 m W x 1.2 m H 4.2 Humane handling of animal 4.3 Procedures that ensure safety of handlers and animals
5. Recommended procedures	This refers to the following: 5.1 Level of canister relative to the neck of tank 5.2 Time elapsed when canister is near neck opening 5.3 Use of long forceps for transfer of semen 5.4 Semen used should be compliant with Genetic Improvement Program (GIP) mating plan(carabao only)
6. Semen inventory	This refers in checking the following information: 6.1 Species 6.2 Bull ID Number/Name 6.3 Location in field tank 6.4 Number of straws 6.5 Breed
7. Tasks	Tasks refer to the following: 7.1 Transfer of semen into and from LN2 tank 7.2 Transfer of LN2 tank 7.3 Maintenance of LN2 above the critical level 7.4 LN2 level measurement
8. Safety	It implies the prevention from the following: 8.1. Suffocation 8.2. Frost bite/burn

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1. Demonstrated semen handling and maintenance.
2. Required Knowledge and Attitudes	2.1 Animal restraining 2.2 LN ₂ level maintenance 2.3 Semen handling 2.4 Practice 3R's and 5S 2.5 Communication 2.5.1 Preparation of records. 2.6 Safety Practices 2.6.1 Personal protective paraphernalia or devices 2.6.2 Refilling of LN ₂ 2.7 Codes and Regulations 2.7.1 Handling of LN ₂ 2.7.2 Animal Welfare Act (RA 8485) 2.8 Values 2.8.1 Patience 2.8.2 Humane handling of animals
3. Required Skills	3.1 Work safety 3.2 Record keeping 3.3 Animal handling skills 3.4 Communication skills
4. Method of Assessment	Competency in this unit must be assessed through: 4.1. Oral interview 4.2. Practical demonstration with questioning 4.3. Observation with questioning 4.4. Third party report 4.5. Portfolio
5. Resource Implication	5.1. Practice Animals 5.2. Farm facilities with chute 5.3. LN ₂ tank and LN ₂ 5.4. Frozen semen 5.5. AI paraphernalia and other supplies 5.6. Personal protective paraphernalia and devices 5.7. Forms and logbook
6. Context of Assessment	6.1. Competency may be assessed individually in the actual workplace or through accredited farms/institution.

UNIT OF COMPETENCY : **PERFORM ARTIFICIAL INSEMINATION**

UNIT CODE : AGR621207

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes on the performance of artificial insemination (AI). It includes preparation and deposition of semen and the performing of post-artificial insemination (AI) activities.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized</i> terms are elaborated in the Range of Variable
1. Prepare semen	1.1. Semen to be used is selected in accordance with the mating plan and production objective. 1.2. Semen straw is prepared for AI in accordance to the established procedures . 1.3. Task is performed in the recommended location to ensure quality of semen and avoid injuries to technician and others. 1.4. Defective semen straws are discarded in accordance to environmental regulations.
2. Deposit semen	2.1. Cleaning of the external genitalia is performed using suitable materials and as needed. 2.2. Semen is deposited into the female reproductive tract following recommended standards . 2.3. Task is performed without causing injuries to the animal, technician and others.
3. Perform post-artificial insemination (AI) activities	3.1. Clients are advised about the management of animals after AI. 3.2. Task is performed without causing injuries to the animal, technician and others 3.3. Wastes are disposed according to existing environmental regulations .

RANGE OF VARIABLES

VARIABLE	RANGE
1. Established procedures	This refers to the following: 1.1. Withdrawal of semen straw from the tank 1.2. Thawing 1.3. Drying 1.4. Loading semen straw to AI gun 1.5. Cutting of semen straw
2. Recommended location	This refers to the following: 2.1. Free from direct sunlight 2.2. Free from direct rain 2.3. Open space or well-ventilated area. 2.4. Free from dust and other contaminants
3. Defective semen straw	The following are the non-complying qualities of frozen semen: 3.1. Popping semen straws 3.2. Accidental dropped straws 3.3. Broken straws 3.4. Unsealed straws 3.5. Sticking together or clamping straws
4. Recommended standards for insemination	This refers to the following: 4.1. Locating and holding of the cervix 4.2. Insertion of the AI gun 4.3. Semen deposition 4.4. AI gun withdrawal
5. Suitable materials	This refers to the following: 5.1. Water 5.2. Soap 5.3. Tissue paper 5.4. Paper towel
6. Environmental regulations	This may include but not limited to the following: 6.1. Water 6.1.1. RA 9275 (Clean Water Act) 6.1.2. DAO 1990-35 (Revised effluent regulation) 6.1.3. DAO 2004-25 (Discharge permit) 6.2. Solid 6.2.1. RA 9003 (Ecological Solid Waste Management Act of 2000 IRR RA 9003
7. Management of animals	7.1. Avoid overwork 7.2. Proper feeding 7.3. Perform heat detection every after 18-21 days 7.4. Humane handling of animals

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Demonstrated preparation and deposition of semen in the female reproductive tract within the time frame.
2. Required Knowledge and Attitudes	2.1 Procedures on semen preparation and deposition 2.2 Reproductive system and estrous cycle of large ruminants 2.3 Waste management 2.4 Practice 3R's and 5S 2.5 Communication 2.5.1 Preparation of inventory reports, production and performance records. 2.6 Safety Practices 2.6.1 Personal protective paraphernalia or device 2.6.2 Humane handling of the animal 2.7 Codes and Regulations 2.7.1 Animal Welfare Act (RA 8485) 2.8 Values 2.8.1 Punctuality 2.8.2 Personal hygiene 2.8.3 Ability to work well with others harmoniously
3. Required Skills	3.1 Work safety 3.2 Sensory and motor skills 3.3 Communication skills
4. Method of Assessment	Competency in this unit must be assessed through: 4.1. Oral interview 4.2. Practical demonstration with questioning 4.3. Observation with questioning 4.4. Third party report 4.5. Portfolio (certificates, awards, recognition, commendations, etc.)
5. Resource Implication	5.1 Practice animals 5.2 Frozen semen 5.3 Farm facilities with chute 5.4 Artificial Insemination paraphernalia and supplies 5.5 Personal Protective Paraphernalia 5.6 Forms
6. Context of Assessment	6.1 Competency may be assessed individually in the actual workplace or through accredited farms/institution.

UNIT OF COMPETENCY : **PREPARE FOR ARTIFICIAL INSEMINATION (AI) DOCUMENTATIONS AND REPORTS**

UNIT CODE : AGR621208

UNIT DESCRIPTOR : This unit covers the required documentation for technicians in the conduct of artificial insemination and related activities.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized</i> terms are elaborated in the Range of Variable
1. Collect and process data	1.1. Necessary forms are secured from partners. 1.2. Data is collected and processed as required in the forms. 1.3. Photos and other pertinent information are gathered as needed. 1.4. Evidence for breed registry is secured, as needed
2. Accomplish and submit forms	2.1. Forms are accomplished and submitted to concerned partners . 2.2. Summary report is prepared and submitted using required forms. 2.3. File copies of accomplished forms and summary report are kept and compiled by technicians according to required filing procedures.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Necessary forms	This may include but not limited to the following: 1.1. AI service form 1.2. Semen utilization form 1.3. Requisition Issuance Slip (RIS) or logbook
2. Data	This refers to the following: 2.1. Date and time of AI 2.2. Sire 2.3. Client's name 2.4. Address of the clients 2.5. Age of animal 2.6. Number of calving 2.7. Breed 2.8. Pregnancy diagnosis 2.9. Type of estrus 2.10. Name of Technician 2.11. Site of deposition 2.12. Body condition score
3. Concerned partners	This includes the following: 3.1. PCC 3.2. NDA 3.3. BAI-UNAIP 3.4. Private suppliers 3.5. Local government units (LGUs) 3.6. DA Regional Field Units (DA-RFU)
4. Summary of report	This may include, but not limited to: 4.1. Summary of AI service data 4.2. Pregnancy diagnosis 4.3. Calf drop 4.4. Semen utilization, as needed

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1. Demonstrated data collection and processing. 1.2. Made entries to required forms for submission. 1.3. Prepared summary report for submission.
2. Required Knowledge and Attitudes	2.1 Familiarity with all the necessary forms. 2.2 Familiarity with semen code and sire directory 2.3 Familiarity with gestation lengths of large ruminants 2.4 Familiarity with breeds of large ruminants 2.5 Knowledge on basic animal husbandry practices 2.6 Practice 3R's and 5S 2.7 Systematic, thorough, and prompt in the accomplishment and submission of reports
3. Required Skills	3.1 Basic record-keeping 3.2 Arithmetic (Multiplication, Division, Addition and Subtraction) 3.3 Communication skills
4. Method of Assessment	Competency in this unit must be assessed through: 4.1. Oral interview 4.2. Demonstration with questioning 4.3. Third party report 4.4. Portfolio
5. Resource Implication	5.1 Required forms 5.2 Communication equipment 5.3 Calculator 5.4 Breeding calendars 5.5 Filing cabinets 5.6 Ball pens/Pencils 5.7 Camera 5.8. Animals 5.9 Tickler
6. Context of Assessment	6.1. Competency may be assessed individually in the actual workplace or through accredited farms/institution.

ELECTIVE COMPETENCY

UNIT OF COMPETENCY: CONDUCT ARTIFICIAL INSEMINATION AWARENESS FOR CLIENTELE

UNIT CODE : AGR621209

UNIT DESCRIPTOR : This unit involves the skills, knowledge and attitudes required to conduct community awareness program on artificial insemination to the wider public. It includes competencies in preparing for the conduct and carrying-out of awareness activities for clientele.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized</i> terms are elaborated in the Range of Variables
1. Prepare for the conduct of awareness activities for clientele	1.1. <i>Clientele consultation</i> is conducted to ensure that programs meet their needs. 1.2. Coordination with local government and relevant personnel is carried-out to determine objectives of the program. 1.3. Awareness activities are structured and finalized with reference to the objectives. 1.4. Relevant <i>equipment, aids and other materials</i> to be used are sourced and organized.
2. Carry-out awareness activities for clientele	2.1. Information on artificial insemination is presented to the target clients in a clear and logical sequence. 2.2. Awareness activities are conducted using effective <i>public speaking techniques</i> . 2.3. Effective <i>approach</i> is used to assist the clientele in understanding the program. 2.4. Opportunities are provided for the clientele to seek clarification on important points. 2.5. <i>Routine clients questions</i> are answered and supplemented with relevant information as needed. 2.6. Queries outside the area of responsibility or expertise are referred to appropriate personnel/area. 2.7. Objections and adverse reactions are handled fittingly.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Clientele	This may include, but not limited to: 1.1 Individuals <ul style="list-style-type: none"> • Farmers • Ranchers • Animal enthusiasts/hobbyists • Pet owners 1.2 Groups and institutions: <ul style="list-style-type: none"> • Farmer's Cooperatives • Community groups • Schools and Training Providers • Local Government Units
2. Clientele consultation	Clientele consultation includes the following : 2.1 Determining community expectations and needs 2.2 Raising community awareness on existing activities relating to artificial insemination (AI)
3. Equipment, aids and other materials	These may include the following but not limited to: 3.1 Equipment: <ul style="list-style-type: none"> • data projector • overhead projector • video and audio-recordings • whiteboard 3.2 Aids and materials: <ul style="list-style-type: none"> • CD-ROMs • charts and posters • data projector slides/shows • diagrams • handouts • information kits • media articles • models • newsletters • overhead transparencies • pamphlets • show bags • videos • website material.
4. Public speaking technique	This may include, but not limited to: 4.1 accent 4.2 audience interaction 4.3 body language 4.4 eye contact 4.5 inflection 4.6 pace of speech 4.7 tone of voice
5. Approach	May include but are not limited to: 5.1 face to face 5.2 personal visitation 5.3 film viewing/visual presentation 5.4 information materials (eg. Pamphlets) 5.5 over the telephone and text messaging 5.6 internet 5.7 demonstration/orientation
6. Routine clients questions	Routine clients questions may relate but not limited to: 6.1 price 6.2 features 6.3 advantages and benefits

EVIDENCE GUIDE

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Prepared for the conduct of awareness activities for clientele</p> <p>1.2 Carry-out awareness activities for clientele</p>
2. Required Knowledge and Attitudes	<p>2.1 Data collection methods to support the development of materials</p> <p>2.2 Legislation relevant to the subject matter of the presentation</p> <p>2.3 Organisational policies and procedures relating to presenting information to the public</p> <p>2.4 Principles of animal welfare and ethics</p> <p>2.5 Practice 3R's and 5S</p> <p>2.6 Range of presentation aids and materials available to support the presentation</p> <p>2.7 Range of communication strategies</p> <p>2.8 Relevant and current community awareness programs</p> <p>2.9 Technical information relevant to the presentation or subject matter.</p> <p>2.10 Attitude</p> <p>2.10.1 Courtesy</p> <p>2.10.2 Patience</p> <p>2.10.3 Innovative</p> <p>2.10.4 Resourceful</p>
3. Required Skills	<p>3.1 Listening questioning techniques.</p> <p>3.2 Verbal and non-verbal communication skills</p> <p>3.2.1 negotiation techniques.</p> <p>3.2.2 types and clients needs</p> <p>3.2.3 handling clients objections</p> <p>3.2.4 performance analysis techniques</p> <p>3.3 Basic level of artificial insemination (AI) servicing</p> <p>3.4 Public speaking skills to include</p> <p>3.4.1 opening techniques to awaken clients interest</p> <p>3.4.2 strategies to focus clients specific needs</p> <p>3.4.3 answering clients questions</p> <p>3.4.4 handling customer objections and adverse reactions</p> <p>3.5 Skills in making aids and presentation materials</p>
4. Resource Implications	<p>The following resource MUST be provided:</p> <p>4.1 a work environment</p> <p>4.2 relevant documentation, such as policy and procedures manuals</p> <p>4.3 a range of clients with different requirements</p> <p>4.4 promotional materials (films, pamphlets, presentations, etc.)</p> <p>4.5 communication gadgets (telephone, cellphone, etc.)</p>
5. Methods of Assessment	<p>Competency may be assessed through:</p> <p>5.1 Observation with questioning</p> <p>5.2 Demonstration with questioning</p> <p>5.3 Third-party reports</p> <p>5.4 Oral questioning/Interview</p> <p>5.5 Portfolio assessment</p>
6. Context of Assessment	<p>6.1 Assessment may be performed in the workplace or simulated workplace situation</p> <p>6.2 Assessment activities are carried out through TESDA's accredited assessment center</p>

SECTION 3. TRAINING STANDARDS

These guidelines are set to provide the Technical and Vocational Education and Training (TVET) providers with information and other important requirements to consider when designing training programs for **ARTIFICIAL INSEMINATION (LARGE RUMINANTS) NC II**.

3.1 CURRICULUM DESIGN

Course Title: **ARTIFICIAL INSEMINATION(LARGE RUMINANTS) NC Level NC II**

Nominal Training Duration:	18 hrs-	Basic Competencies
	14 hrs-	Common Competencies
	<u>172 hrs</u>	Core Competencies
	204 hrs	Total training duration
	16 hrs	Elective Competency

Course Description:

This course is designed to enhance the knowledge, desirable attitudes and skills of artificial insemination technician in accordance with industry standards. It covers establishing readiness for artificial insemination, preparing for artificial insemination (AI) operation, performing artificial insemination (AI) and preparing artificial insemination (AI) documentations and reports. It also includes competencies in workplace communication, teamwork, practicing professionalism, safety in the use of hand tools and equipment, housekeeping and basic mathematical operations and calculations. It has elective competency in conducting artificial insemination awareness for clientele.

BASIC COMPETENCIES (18 hrs.)

Unit of Competency	Learning Outcomes	Training Methodology	Assessment Approach
1. Participate in workplace communication	1.1 Obtain and convey workplace information. 1.2 Complete relevant work related documents. 1.3 Participate in workplace meeting and discussion.	<ul style="list-style-type: none"> • Group discussion • Interaction 	<ul style="list-style-type: none"> • Demonstration • Observation • Interviews/questioning
2. Work in a team environment	2.1 Describe and identify team role and responsibility in a team. 2.2 Describe work as a team member.	<ul style="list-style-type: none"> • Discussion • Interaction 	<ul style="list-style-type: none"> • Demonstration • Observation • Interviews/questioning

Unit of Competency	Learning Outcomes	Training Methodology	Assessment Approach
3. Practice career professionalism	3.1 Integrate personal objectives with organizational goals. 3.2 Set and meet work priorities. 3.3 Maintain professional growth and development.	<ul style="list-style-type: none"> • Discussion • Interaction 	<ul style="list-style-type: none"> • Demonstration • Observation • Interviews/questioning
4. Practice occupational health and safety	4.1. Identify hazards and risks. 4.2. Evaluate hazards and risks. 4.3. Control hazards and risks. 4.4. Maintain occupational health and safety awareness.	<ul style="list-style-type: none"> • Discussion • Plant tour • Symposium 	<ul style="list-style-type: none"> • Observation • Interview

COMMON COMPETENCIES
(14 hrs.)

Unit of Competency	Learning Outcomes	Training Methodology	Assessment Approach
1. Apply safety measures in farm operations	1.1. Apply appropriate safety measures while working in farm 1.2. Safe keep/dispose tools, materials and outfit	<ul style="list-style-type: none"> • Self-paced/modular • Lecture/Discussion • Interaction • Practical Demonstration • Visit/tour 	<ul style="list-style-type: none"> • Oral/Written Interviews • Direct Observation • Practical Demonstration
2. Use farm tools and equipment	2.1. Select and use farm tools 2.2. Select and operate farm equipment 2.3. Perform preventive maintenance	<ul style="list-style-type: none"> • Self-paced/modular • Lecture/Discussion • Interaction • Practical Demonstration • Visit/tour 	<ul style="list-style-type: none"> • Oral/Written Interviews • Direct Observation • Practical Demonstration
3. Perform estimation and basic calculation	3.1. Perform estimation 3.2. Perform basic workplace calculation	Self-paced/modular Lecture/Discussion Interaction Practical Exercise	Oral/Written examination Practical exercise

**CORE COMPETENCIES
(172 hrs.)**

Unit of Competency	Learning Outcomes	Training Methodology	Assessment Approach
1. Establish readiness for artificial insemination	1.1. Validate gathered information on clientele and animal condition 1.2. Assess animal Readiness	<ul style="list-style-type: none"> • Lecture-discussion • Group Discussion • Hands-on Practical demonstration • Role playing • Case analysis 	<ul style="list-style-type: none"> • Written examination • Demonstration
2. Prepare for artificial insemination (AI) operation	2.1. Carry-out preparatory activities	<ul style="list-style-type: none"> • Lecture • Lecture-discussion • Group-discussion • Demonstration • Hands-on 	<ul style="list-style-type: none"> • Written examination • Demonstration
3. Perform artificial insemination (AI)	2.2. Maintain semen quality		
4. Prepare artificial insemination(AI) documentations and reports	2.3. Prepare semen and conduct AI procedure		

**ELECTIVE COMPETENCIES
(16 hrs.)**

Unit of Competency	Learning Outcomes	Training Methodology	Assessment Approach
1. Conduct artificial insemination awareness for clientele	1.1. Prepare for the conduct of community awareness programs 1.2. Carry out community awareness programs	<ul style="list-style-type: none"> • Lecture/demo • Group Discussion • Hands-on 	<ul style="list-style-type: none"> • Written examination • Demonstration

3.2 TRAINING DELIVERY

The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of competency-based TVET.

- The training is based on curriculum developed from the competency standards;
- Learning is modular in its structure;
- Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies;
- Training is based on work that must be performed;
- Training materials are directly related to the competency standards and the curriculum modules;
- Assessment is based in the collection of evidence of the performance of work to the industry required standard;
- Training program allows for recognition of prior learning (RPL) or current competencies;
- Training allows for multiple entry and exit; and
- Training programs are registered with UTPRAS.

The competency-based TVET system recognizes various types of delivery modes, both on and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities may be adopted when designing training programs:

- The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in-school and in-industry training or fieldwork components. Details can be referred to the Dual Training System (DTS) Implementing Rules and Regulations.
- Modular/self-paced learning is a competency-based training modality wherein the trainee is allowed to progress at his own pace. The trainer facilitates the training delivery
- Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners.
- Supervised industry training or on-the-job training is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire specific competencies prescribed in the training regulations.
- Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, or audio, video or computer technologies.
- Project-Based Instruction is an authentic instructional model or strategy in which students plan, implement and evaluate projects that have real world applications.

3.3 TRAINEE ENTRY REQUIREMENTS

Trainees or students wishing to enroll in this course should possess the following requirements:

- Able to read and write;
- With good moral character;
- Ability to communicate, both oral and written; and
- Physically fit and mentally healthy as certified by a Public Health Officer

3.4 LIST OF TOOLS, EQUIPMENT AND MATERIALS

ARTIFICIAL INSEMINATION (LARGE RUMINANTS) NC II

Recommended list of tools, equipment and materials for the training of 12 trainees for Artificial Insemination NC II

QTY	TOOLS	QTY	EQUIPMENT	QTY	MATERIALS
12	AI Kit	1	Liquid Nitrogen Tank (Dewar) with 33 L capacity (Mother tank)	1,200 pcs	Semen straws
24	Catheters	1	Liquid Nitrogen Tank With 3 L capacity (field tank)	1,200 pcs	AI sheaths
1 pc.	Bull lead	12 sets	Personal Protective Paraphernalia (boots, coverall/ apron, surgical and shoulder-length plastic gloves)	6 pcs	Female Reproductive Organ Specimens
1 pc.	Nail cutter	1	Vehicle (optional)	120 m.	Rope
1 set	First aid kit	1	Camera	1L	Iodine (10% Povidone)
12 pcs.	Training bag	1	Microscope	2 sets	Pail and dipper
1	Shovel	1	Power sprayer (optional)	10 m	Hose
1	Wheel borrow	1	Gen set (optional)	12 bottles	Ethyl alcohol (60%)
		1	Freezer	12 bottles	Isopropyl alcohol (70%)

QTY	TOOLS	QTY	EQUIPMENT	QTY	MATERIALS
		1	Fire extinguisher	12 pcs.	Germicidal Soap
		1	Set Audio visuals with screen	12 pcs.	Disposable towel
		1	White board	1pcs.	Flash lights
		12 sets	Chairs and tables	1 box	Glass slides
		2 Units	Computer	1 box	Cover slips
		1	Printer	2	Trash can
		1	Photocopier (optional)	50 pcs.	Disposal waste bags
				12 packs	Paper towels
				2 pcs.	Broomstick
				1 box	Surgical gloves
				1 box	Shoulder-length gloves
			Models/actual objects	2 pcs.	Brooms
		12	Practice animals	6 pcs.	Brush
				12 sheets	Manila paper
				6 pcs	Board marker
				2 rolls	Tapes
				12 pcs	Pencil
				1 ream	Bond paper
					Learning Materials
				12 pcs	• Training manuals
				1 pc	• Animal charts
				1 pc	• Animal breeds
				1 lot	• Video materials

3.5 TRAINING FACILITIES

ARTIFICIAL INSEMINATION (LARGE RUMINANTS) NC II

Based on a class size of 12 students/trainees

SPACE REQUIREMENT	SIZE IN METERS	TOTAL AREA IN SQ. METERS
• Working Corral	30 x 30	900
• Animal House	4 x 2 per animal x12	96
• Lecture Room	7x 5	35.00
• Laboratory room	6 x 8	48
• Storage room	4 x 3	12
• Locker room/ Dressing area		
○ Female	4x3	12
○ Male	4x3	12

3.6 TRAINER'S QUALIFICATIONS FOR AGRICULTURE SECTOR

ARTIFICIAL INSEMINATION (LARGE RUMINANTS) NC II

TRAINER QUALIFICATION (TM I)

- Animal Science Graduate or Doctor of Veterinary Medicine; or
- Must be a holder of Artificial Insemination NC II
- Must have undergone training on Training Methodology I (TM I)
- Must be physically and mentally fit
- *Must be computer literate
- *Must have at least 2 years job/industry experience

* *Optional.* Only when required by the hiring institution.

Reference: TESDA Board Resolution No. 2004 03

3.7. INSTITUTIONAL ASSESSMENT

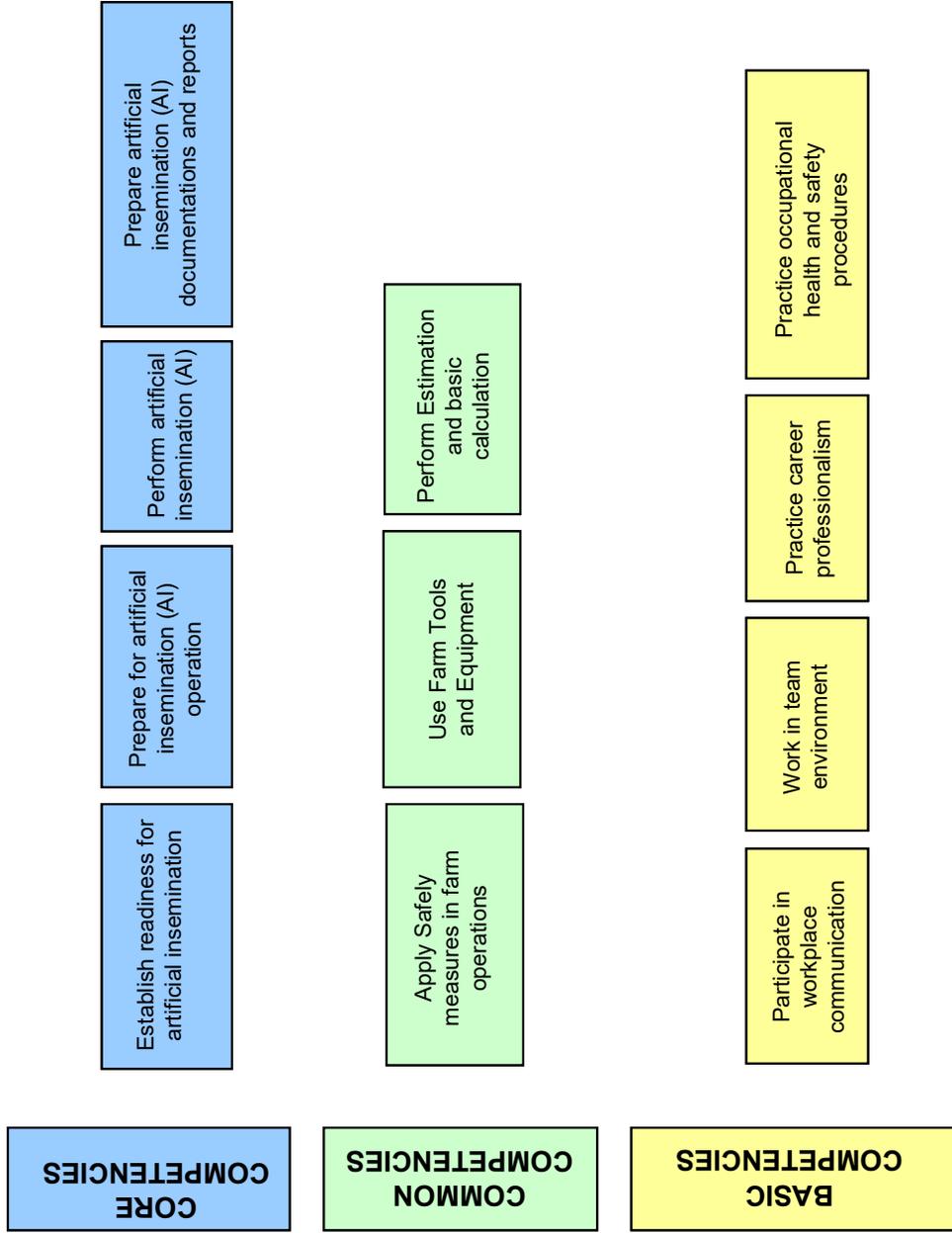
Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.

As a matter of policy, graduates of programs registered with TESDA under these training regulations are required to undergo mandatory national competency assessment upon completion of the program

SECTION 4 ASSESSMENT AND CERTIFICATION ARRANGEMENTS

- 4.1. To attain the National Qualification of Artificial Insemination (Large Ruminants) NC II, the candidate must demonstrate competence in all the units listed in Section 1. Successful candidates shall be awarded a National Certificate signed by the TESDA Director General.
- 4.2. Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units.
- 4.3. The following are qualified to apply for assessment and certification:
 - 4.4.1 Graduates of formal, non-formal and informal including enterprise-based training programs with one year (1) field/work exposure.
 - 4.4.2 Experienced Workers (wage employed or self-employed)
- 4.4. The guidelines on assessment and certification are discussed in detail in the Procedures Manual on Assessment and Certification and Guidelines on the Implementation of the Philippine TVET Qualification and Certification System (PTQCS).

**Supermarket of Competencies
AGRI-FISHERY Sector**



DEFINITION OF TERMS

Artificial Insemination – introduction of semen (sperm cells in semi fluid) into the female's reproductive tract using instruments.

Barrow – a male swine, castrated (testicles removed) before reaching sexual maturity

Bellowing – a sound made by animals to call someone's attention, which is profoundly pronounced in females in estrus; vocalization of an animal in estrus to attract the opposite sex

Boar – uncastrated male swine usually kept for breeding

Body condition scoring system – refers to the system or method of evaluating the over-all condition of animals (such as nutritional status of animals particularly dairy animals) based on body conformation; scoring ranges from 1-5 where score 1 is very thin and score 5 is very fat or obese

Breed -is a group of animals or plants with a homogeneous appearance, behavior, and other characteristics that distinguish it from other animals or plants of the same species

Breeding calendar- refers to the schedule of breeding (thru AI or natural mating) of individual animal or animals in the herd, where dates of estrus, breeding, dried off (off from milk), calving, pregnancy diagnosis, fertility status and other reproductive related events are reflected; it is an efficient tool that provides important information on the events of each heifer/cow in the herd; a modified (circular) calendar that can monitor the reproductive activity of animals.

Calf – a newly born male or female cattle or buffalo; a young offspring of cattle or buffalo

Calf drop – refers to the calf born on the ground; an offspring of cattle or carabao born alive

Calving – the act or process of parturition or delivering calf

Cervix- from the Latin *cervix uteri*, meaning "neck of the womb", is the lower, narrow portion of the uterus where it joins with the top end of the vagina. It is cylindrical or conical in shape and protrudes through the upper anterior vaginal wall; part of the reproductive tract, which is sphincter-like structure that projects posteriorly to the vagina and connects anteriorly to the uterus

Chute- is a channel or a holding area in handling or sorting animals; is a structure used to restrain cattle or carabao which measures 2m L x 1.0 m width x 1.2m H

Colostrum – first milk, within 24 hours, from a female animal after giving birth

Cow – a mature female cattle or buffalo that has given birth or delivered a young

Crossbreed – a group of animals produced by mating two or more different breeds or strains of animals; an offspring produced from the mating of two distinct breeds of animals of the same species

Culling –removal of undesirable or inferior animals in the herd based on important economic traits and overall performance

Estrus – also refers to as heat period; time when a female animal is receptive to accept male ; physiologically, when the hormone estrogen is at its peak

External genitalia –sex organ, or primary sexual characteristic, as narrowly defined, is any of the anatomical parts of the body which are involved in sexual reproduction and constitute the reproductive system in a complex organism

Gestation Period – refers to the period of carrying the young in the womb or pregnancy

Heifer – a young female cattle or buffalo that has not given birth

Inbreeding – mating of closely related animals in a herd

Liquid nitrogen (LN₂)- is nitrogen in a liquid state at a very low temperature (boiling point is -196°C and freezing point is -210°C), a colourless clear liquid and is often referred to by the abbreviation, LN₂ or "LIN" or "LN"; and is a cryogenic fluid which can cause rapid freezing on contact with living tissue, which may lead to frostbite

Large ruminants- well-known large grazing or browsing mammals. Refers to a group of large animals, cattle and water buffalo, that are characterized by the four compartments of their stomach (rumen, reticulum, omasum and abomasum), which could subsist on forage grasses or vegetation

Livestock – domestic animals kept for use on a farm and raised for sale and profit

Mating plan- is a system of identifying which cow/heifer is mated/bred to which bull; a systematic plan of breeding animals designed to improve a particular trait/s

Nutrients – food elements or substance found in the feeds such as protein, carbohydrates, fats and others

Practice animal- is an animal kept in the farm identified to be used in the practice of any production/reproduction activity and not necessarily of productive use to contribute sales in the farm, like, animals used in the practice of insertion in the conduct of AI proficiency; an animal used in trainings for artificial insemination and pregnancy diagnosis

Pregnancy diagnosis- a technique or a method of determining or diagnosing a pregnant animal; a procedure used to determine pregnancy through rectal palpation or other methods

Purebreeding – is the mating of the-unrelated individuals of in the same breed

Ruminants – refers to animals with complex digestive system e.g. cattle, carabao, goats and sheep

Semen- is an organic fluid from male animals, also known as seminal fluid, that may contain spermatozoa; a male secretion that consists of the seminal fluid and sperm cells

Semen straw- small plastic straw holding between 0.4 and 1.0 ml of semen; is a type of packing material used in the processing and storage of semen

Selection – refers to the process of choosing males and females with desirable characteristics either for breeding or replacement stocks

Signs of estrus- refers to the behavioral, external and physiological manifestations of females in estrus, which includes swelling of the vulva, reddening of the vaginal epithelium, mucus discharge, mounting behavior, restlessness, lacks of appetite, standing still when mounted and tonus of the uterus

Sire- a male animal intended as breeding bull or used as breeding bull; a genetically superior male animal used for natural breeding or semen donor

Steer – a young male calf one year to 18 months old

Suffocation- also known as asphyxia or asphyxiation (from Greek α - "without" and σ φύξις *sphyxis*, "heartbeat") is a condition of severely deficient supply of oxygen to the body that arises from being unable to breathe normally for eg., due to choking, accidental strangling of the rope on the neck, etc.

Vulvar lips- refers to the two folds of skin, the labia minora and majora

Vulva- from the Latin *vulva*, plural *vulvae*, consists of the external genital organs of the female mammal; a female external genitalia

Working corral- an area where the animals are hold for handling and sorting and other production activities are being done

ACKNOWLEDGEMENTS

The Technical Education and Skills Development Authority (TESDA) wishes to extend gratitude and appreciation to the many representatives of business, industry, academe and government agencies and labor groups who donated their time and expertise to the development and validation of these Training Regulations.

THE TECHNICAL EXPERT PANEL (TEP)

Dr. Edwin C. Atabay

Center Director
Philippine Carabao Center,
Central Luzon State University
Science City of Muñoz, Nueva Ecija

Dr. Eric P. Palacpac

Project Development Officer V
Knowledge Resource Management
Division
Philippine Carabao Center
National Headquarters & Gene Pool
Science City of Muñoz, Nueva Ecija

Mr. Ramon Jumawan

Artificial Insemination Coordinator
Philippine Carabao Center,
Central Mindanao University
Musuan, Bukidnon

Mr. Eulogio M. Montealto

Project Evaluation Officer V
Program, Monitoring, Evaluation Division
Philippine Carabao Center
National Headquarters & Gene Pool
Science City of Muñoz, Nueva Ecija

Dr. Gundolino Bajenting

Center Veterinarian
Philippine Carabao Center
Ubay Stock Farm
Lomangog, Ubay, Bohol

Dr. Edith Lasanas

Veterinarian
Sob Zoomanity, Subic

Dr. Jose Arceo M. Bautista

University Research Associate
UPLB-Animal Dairy Sciences Cluster (ADSC)
Los Baños, Laguna

Dr. Dona Rebudiao

Veterinarian
Zoomanity, Tagaytay City

Dr. Annabelle S. Sarabia

Agricultural Center Chief IV
Operations Group
Philippine Carabao Center
National Headquarters & Gene Pool
Science City of Muñoz, Nueva Ecija

Dr. Jesus Rommel V. Herrera

Supervising Science Research Specialist
Philippine Carabao Center
UP Los Baños, Laguna

Angel Morcozo
Senior Agriculturist
DA-Agricultural Training Institute
Quezon City

Mr. Romulo Salas
Science Research Specialist II
Philippine Carabao Center
Cagayan State University
Piat, Cagayan

Dr. Franklin T. Rellin
Center Director
Philippine Carabao Center
Cagayan State University
Tuguegarao City, Cagayan

Dr. Liza G. Battad
Project Evaluation Officer IV
Planning & Special Projects Division
Philippine Carabao Center
National Headquarters & Gene Pool
Science City of Muñoz, Nueva Ecija

Dr. Arnel N. del Barrio
Center Director
Philippine Carabao Center
UP Los Baños, Laguna

Dr. Marlowe U. Aquino
NIZ Coordinator
Philippine Carabao Center
National Headquarters & Gene Pool
Science City of Muñoz, Nueva Ecija

Dr. Felomino V. Mamuad
Deputy Executive Director
Philippine Carabao Center
National Headquarters & Gene Pool
Science City of Muñoz, Nueva Ecija

The Participants in the National Validation of these Training Regulations:

Dr. Edwin Sanchez
Director/Farm Manager
ANSA Genetics, Inc
Lipa City Batangas

Dr. Paul Limson
UNAIP National Coordinator
United National Artificial Insemination
Program
Bureau of Animal Industry
Quezon City

Earl Jose I. Lopez
Artificial Insemination (AI) Technician
Philippine Carabao Center
Nueva Ecija

Melvin C. dela Cruz
Village-Based Artificial Insemination
Technician (VBAIT)
Casile, Uanera, Nueva Ecija

Samuel B. Dullas
AI Technician
Department of Agriculture-Local
Government Unit
Guimba, San Rafael, Nueva Ecija

Erwin C. Encarnacion
AI Technician
Philippine Carabao Center
Central Luzon State University
Science City of Muñoz, Nueva Ecija

Efren C. Encarnacion
AI Technician
Philippine Carabao Center
Central Luzon State University
Science City of Muñoz, Nueva Ecija

Leonard F. Abaya
VBAIT
Mangolago, Victoria, Tarlac

Randy S. Francisco
VBAIT
San Vicente, Llanera, Nueva Ecija

Ericson E. Mina
VBAIT
Philippine Carabao Center
Central Luzon State University
Science City of Muñoz, Nueva Ecija

Herardonando V. Venturina
Supervising Science Research
Specialist
Philippine Carabao Center
Central Luzon State University
Science City of Muñoz, Nueva Ecija

Cornelio M. Agustin
VBAIT
Philippine Carabao Center
Central Luzon State University
Science City of Muñoz, Nueva Ecija

Rovina R. Piñera
Science Research Specialist
Philippine Carabao Center
Tuguegarao City, Cagayan

Victor B. Tapulao
VBAIT
Philippine Carabao Center
Cagayan State University
Tuguegarao City, Cagayan

Al G. Bernardino
Farm Superintendent II
Philippine Carabao Center
Tuguegarao City, Cagayan

Romel John B. Carag
Science Research Assistant
Philippine Carabao Center
Tuguegarao City, Cagayan

Ricardo D. dela Cruz
VBAIT
Philippine Carabao Center
Tuguegarao City, Cagayan

Romulo A. Salas
Science Research Specialist II
Philippine Carabao Center
Tuguegarao City, Cagayan

Wilfredo T. Dumlan
VBAIT
Philippine Carabao Center
Tuguegarao City, Cagayan

Roland P. Rafael
VBAIT
Philippine Carabao Center
Tuguegarao City, Cagayan

Bernardo B. Ombao
Farm Worker II
Philippine Carabao Center
Central Mindanao University
Musuan, Bukidnon

Armando G. Racho
Science Research Specialist II
Philippine Carabao Center
Central Mindanao University
Musuan, Bukidnon

Jesus C. Coligans
Farm Worker I
Philippine Carabao Center
Central Mindanao University
Musuan, Bukidnon

Marcial R. Renacia
Senior Science Research Specialist
Philippine Carabao Center
Central Mindanao University
Musuan, Bukidnon

Noel G. Tantico
Agriculturist II
Philippine Carabao Center
Central Mindanao University
Musuan, Bukidnon

Jonathan T. Suminguit
Agricultural Technologist
Philippine Carabao Center
Central Mindanao University
Musuan, Bukidnon

Virgilio D. Abon
Farm Worker II
Philippine Carabao Center
Central Mindanao University
Musuan, Bukidnon

Noel A. Ceballos
Laboratory Technician
Philippine Carabao Center
U.P. Los Baños, Laguna

Dante A. Esalan
Agricultural Technician II
Local Government Unit
Magdalena, Laguna

Herman P. Javier
Agricultural Technologist
Office of the Provincial Veterinarian
Sta. Cruz, Laguna

Narciso S. Toledo
Laboratory Technician
Philippine Carabao Center
U.P. Los Baños, Laguna

Bonifacia H. Granada
Chief, Extension Services
Philippine Carabao Center
Ubay Stock Farm
Ubay, Bohol

Nicolas L. Tejada, Jr.
AI Technician/Livestock Assistant
Technician
Local Government Unit
Bilar, Bohol

Elena S. Paraguas
Science Research Assistant
Philippine Carabao Center
Central Mindanao University
Musuan, Bukidnon

Dr. Lowell C. Paraguas
Center Director
Philippine Carabao Center
Central Mindanao University
Musuan, Bukidnon

Gerardo E. Hernandez
AI Technician
Local Government Unit
Guinayangan, Quezon

Jose C. Canaria
Senior Science Research Specialist
Philippine Carabao Center
U.P. Los Baños, Laguna

Joey A. Sacop
Agricultural Technician
Provincial Capitol
Sta. Cruz, Laguna

Edmer Q. Valencia
VBAIT
Joel Town Subd., San Pablo City
Laguna

Reynor A. Garcia
Laboratory Technician I
Philippine Carabao Center
U.P. Los Baños, Laguna

Nathaniel H. Cagas
AI Technician
Local Government Unit
Sierra-Bullones, Bohol

Oswaldo B. Godinez
Agriculturist II
Philippine Carabao Center
Ubay Stock Farm
Ubay, Bohol

Abdon A. Anoos
Farm Worker II
Philippine Carabao Center
Ubay Stock Farm
Ubay, Bohol

Erickson P. Garcuta
AI Coordinator
Philippine Carabao Center
Ubay Stock Farm
Ubay, Bohol

George D. Ciroy
Agriculturist
Local Government Unit
Ubay, Bohol

Joseph C. Rojo
Agriculturist
Local Government Unit
Ubay, Bohol

Maximo H. Bojo
Agricultural Technologist/AI
Technician
Local Government Unit-Batuan
Batuan, Bohol

Johnny M. Samson
Provincial Coordinator
Office of the Provincial Veterinarian
Tagbilaran City, Bohol

Rito P. Penales
DAIC
Office of the Provincial Veterinarian
Mayacabac, Dausi, Bohol

Joselito G. Talandrata
Farm Worker I
Office of the Provincial Veterinarian
Tagbilaran City, Bohol

The Management and Staff of the TESDA Secretariat

- Qualifications and Standards Office
- Competency Certification and Assessment Office