

## IMMUNOLOGY AND VACCINES

**ISCED UNIT CODE:** 0912 541 16A

**TVET CDACC UNIT CODE:** HE/CU/AHP/CC/10/6/MA

### Relationship to Occupational Standards

This unit addresses the Unit of Competency: Apply knowledge of immunology in animal vaccination

**Unit Duration:** 50 Hours

### Unit Description

This unit specifies the competencies required by animal health and production technologist to apply knowledge of immunology in animal vaccination. It involves applying knowledge of immunology, knowledge of serology in disease diagnosis, and applying knowledge of vaccines and immunization.

### Summary of Learning Outcomes

By the end of this unit, the learner should be able to:

| S/No         | Learning Outcomes                                | Duration (Hours) |
|--------------|--------------------------------------------------|------------------|
| 1.           | Apply knowledge of immunology                    | 20               |
| 2.           | Apply knowledge of serology in disease diagnosis | 10               |
| 3.           | Apply knowledge of vaccinology and immunization  | 20               |
| <b>Total</b> |                                                  | <b>50</b>        |

### Learning Outcomes, Content and Suggested Assessment Methods

| Learning Outcome                 | Content                                                                 | Methods of assessment                                                                                |
|----------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| 1. Apply knowledge of immunology | 1.1. Definition of terminologies<br>1.1.1. Immunology<br>1.1.2. Vaccine | <ul style="list-style-type: none"><li>• Practical</li><li>• Project</li><li>• Portfolio of</li></ul> |

|                                                     |                                                                                                                                                                                                                                                                                                                           |                                                                                                                           |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
|                                                     | 1.1.3. Immunogenicity<br>1.1.4. Immune system<br>1.1.5. Immunological principles<br>1.2. Types of immunity<br>1.2.1. Acquired<br>1.2.2. Innate<br>1.2.3. Humoral<br>1.2.4. Cell mediated<br>1.3. Immune reactions<br>1.4. Antigen antibody reactions<br>1.5. The complement system<br>1.6. Autoimmune diseases of animals | evidence<br>• Third party report<br>• Written assessment<br>• Oral questioning                                            |
| 2. Apply knowledge of serology in disease diagnosis | 2.1. Define serology<br>2.2. Serological principles<br>2.3. Types of serological tests<br>2.3.1. ELISA<br>2.3.2. CFT<br>2.3.3. PCR<br>2.4. Importance of serology                                                                                                                                                         | • Practical<br>• Project<br>• Portfolio of evidence<br>• Third party report<br>• Written assessment<br>• Oral questioning |
| 3. Apply knowledge of vaccinology and immunization  | 3.1. Types of vaccines<br>3.1.1. Live<br>3.1.2. Killed<br>3.1.3. Attenuated<br>3.1.4. Toxoids<br>3.2. Mode of action of vaccines<br>3.3. Adjuvants and vaccines<br>3.4. Vaccine storage and handling<br>3.5. Vaccines for veterinary use.<br>(Rabies, FMD, LSD, RVF, NCD, fowl pox, ASF, Fowl Typhoid,                    | • Practical<br>• Project<br>• Portfolio of evidence<br>• Third party report<br>• Written assessment<br>• Oral questioning |

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|  | Anthrax) |  |
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### Suggested Methods of delivery

- Practical
- Projects
- Demonstrations
- Group discussion
- Direct instructions

### Recommended Resources for 25 trainees

| S/No. | Category/Item             | Description/<br>Specification | Quantity | Recommended<br>Ratio<br>(Item:<br>Trainee) |
|-------|---------------------------|-------------------------------|----------|--------------------------------------------|
|       | <b>Learning materials</b> |                               |          |                                            |
| 1.    | Projector                 |                               | 1        | 1:25                                       |
| 2.    | Whiteboard/Smart board    |                               | 1        | 1:25                                       |
| 3.    | Desktop/computer          |                               | 1        | 1:25                                       |
| 4.    | Lecture/Theory room       |                               | 1        | 1:25                                       |
| 5.    | Laboratory                | As guided by<br>KVB           | 1        | 1:25                                       |
| 6.    | Animal farm               | As guided by<br>KVB           | 1        | 1:25                                       |
| 7.    | Library                   |                               | 1        | 1:25                                       |
| 8.    | E-Library                 |                               | 1        | 1:25                                       |