

Training for CAHWs

Sampling for Laboratory FMD Diagnosis in Brunei Darussalam

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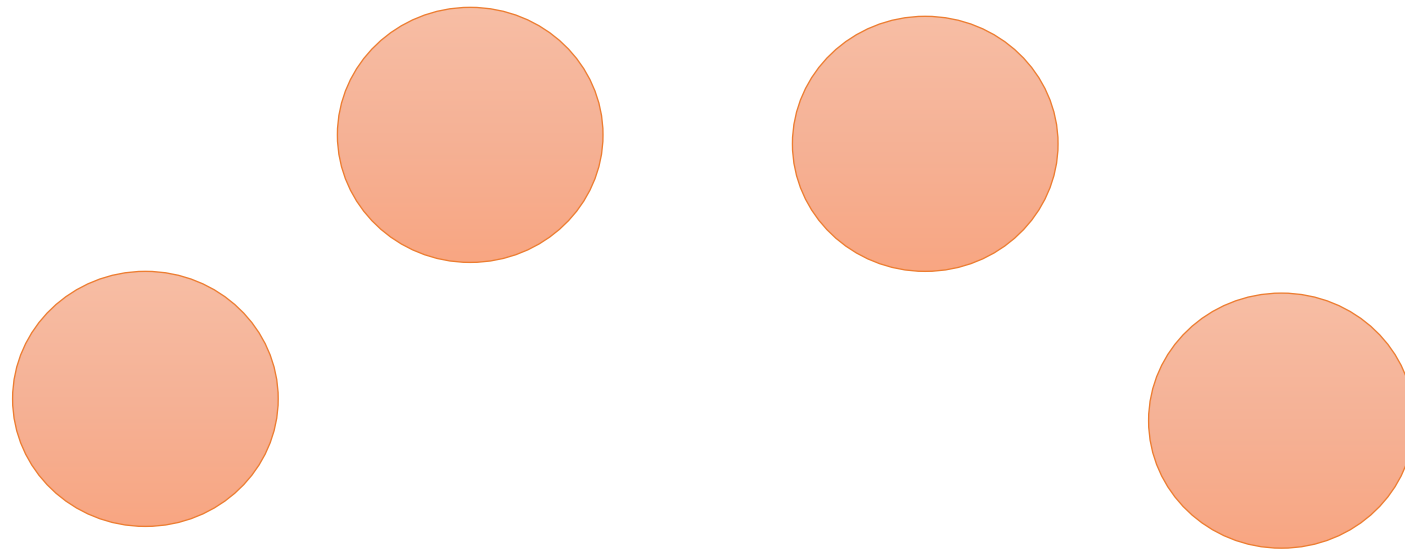
Division of Livestock Industry and Veterinary Services

Department of Agriculture and Agrifood



Training Form

- Target audience is para-vets, staffs under Division of Livestock and Veterinary Services and Agriculture Development District Section such as Livestock Inspector (LI), Veterinary Assistant (VA) and Meat Inspectors (MI)
- About a total of 20 participants
- Seating arrangement – Islands



Screen & Presenters

Content

1. Objectives

2. Purpose of Sampling

3. Laboratory Analysis

4. Collecting Samples for FMD Diagnosis

5. Labelling and Submission

6. Video and Demonstration

7. Quiz & Task



1. OBJECTIVES

(1-2 minutes)



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LESSON OBJECTIVES



Know how to use accurate type of transport media and temperature control



Collect appropriate samples, packaging requirements, labelling and how to transport samples to the laboratory



Fill in the submission form accordingly

At the end of this lesson you will be able to:



2. PURPOSE OF SAMPLING

(3-5 minutes)



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- Diseases diagnosis
- Disease surveillance (Freedom of FMD)
- Health certification
- Monitoring responses towards treatment and vaccination
- Research purposes



**Why Are The
Samples
Collected?**

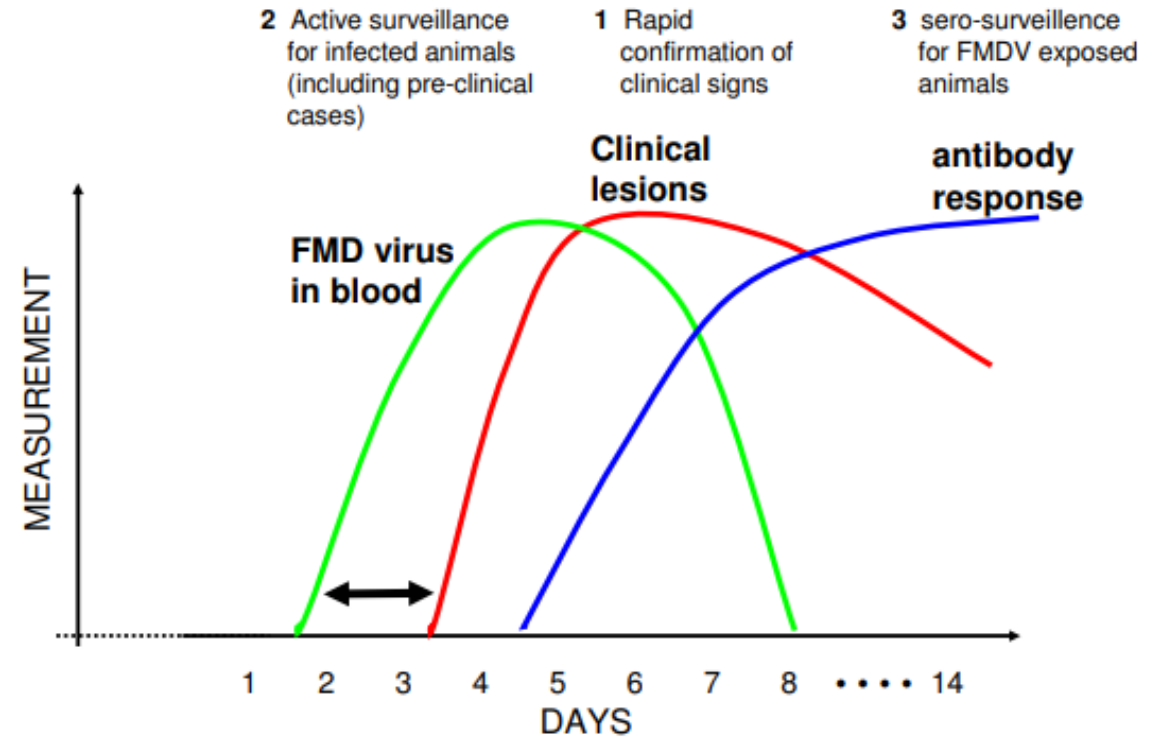
Laboratory Diagnosis

- To confirm the presence of clinical stage of FMD during an outbreak.
- **Good quality samples = good quality lab analysis**



Diagnostic Window

- Active surveillance for infected animals. Virus presence in blood. Test for viral RNA.
- If clinical lesions are present, viral antigen can be detected in epithelium sample or vesicular fluid.
- Sero-surveillance for recovered animals can be detected by testing for antibody.



Representative "in contact" cattle data from Alexandersen et al., 2003 and unpublished data from IAH



3. LABORATORY ANALYSIS

(3-5 minutes)



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Why do we need Lab diagnosis?

- To **confirm** for clinical suspected FMD animals
- Use for **epidemiological** investigation:
 - To understand origin of virus
 - Selection of vaccine

TYPE OF LAB ANALYSIS



NSP Ab ELISA

Population freedom from infection
Detection of immune response

RT-PCR

Confirmation of clinical cases





4. COLLECTING SAMPLES FOR FMD DIAGNOSIS

(10 minutes)



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Do you know FMD Clinical signs?

A



B



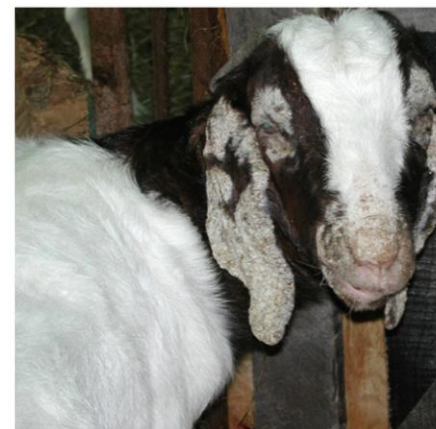
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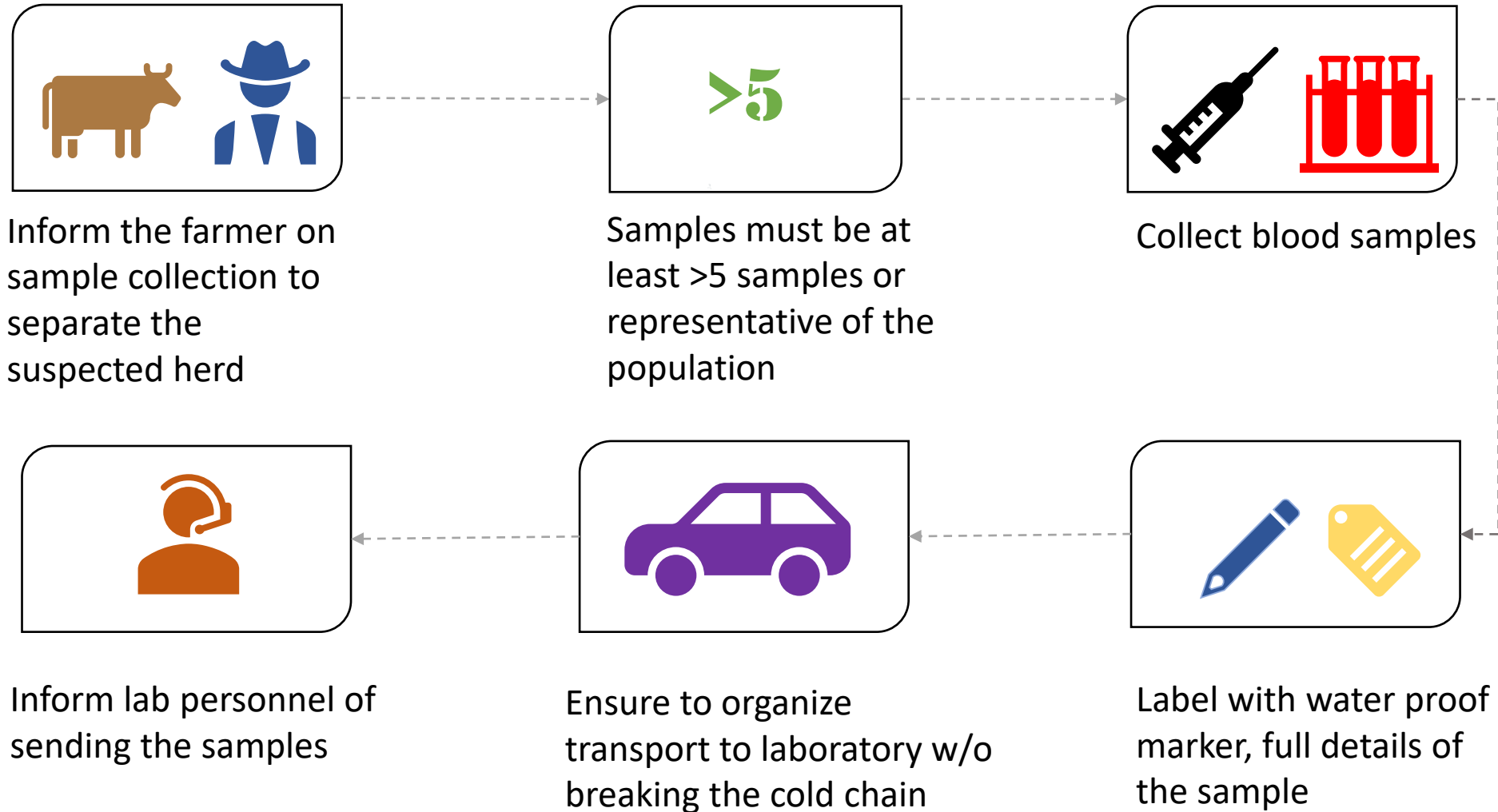
D



E



Process of Collecting Samples



What samples should we take?



Blood



Epithelium (if present)



Swab/Saliva

BLOOD SAMPLE

- Collected in Plain tube for antibody detection
- About 5ml of blood from either jugular or vein
- One animal per tube

Example: Goat



Press the side of the goat's throat near at the bottom of the neck. May shave/use alcohol spray around the area for easy access



Once located, insert the needle upward at **an angle nearly parallel** to the vein.

BLOOD EXTRACTION



TRANSFER TO TUBES



TAGGING IDENTIFICATION



Dont's

- Not to push the needle through the vein
- If blood does not enter the syringe, remove the needle and start over
- No sharing of needles. To be used once and dispose properly
- Not labelling/tagging of the animal with the sample ID
- Ensure the blood samples are maintained at cold chain



5. LABELLING AND SUBMISSION

(5 minutes)



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LABEL DETAILS

- Animal ID/Name
- Sample ID
- Date
- Species
- Sample type
- Location



Transporting samples to Lab

- To inform the veterinary laboratory personnel of the incoming samples
- Ensure to fill in the correct testing in the form



ANIMAL DIAGNOSTIC TEST REQUEST FORM


Client Details

Type of Test Request

Sample Description

Animal Details

National Veterinary Laboratory Services Unit
Division of Livestock and Veterinary Services
Department of Agriculture and Agrifood
Ministry of Primary Resources and Tourism



Brunei Agriculture Research Centre
Jalan Tutang Kilanas, BP9900
Negara Brunei Darussalam
Tel: +673 9965122
Website: www.agriculture.gov.bn

BORANG PERMOHONAN UJIAN DIAGNOSTIK HAWIAN
ANIMAL DIAGNOSTIC TEST REQUEST FORM

MAKLUMAT PELANGGAN / CUSTOMER DETAILS

Nama Peranggan / Customer's Name: Unit Perkhidmatan Maternal Veterinar

Alamat / Address: BARC, Kilanas

Cara pengangkutan / Transport: Handover Mohd Asat

Contak person: No. HP / HP No: 8965122

PERKHIDMATAN UJIAN / TESTING SERVICES

Sila tandakan K/ bagi ujian dan/atau pemeriksaan yang dikehendaki / Please indicate with a K/ for laboratory tests and/or examination required

PATHOLOGY (sila isi / please fill in 1, 2, 3 & 4)

☐ Post-Mortem Examination

PARASITOLOGY (sila isi / please fill in 1, 2, 3 & 4)

☐ Faecal F flotation Test

☐ Egg Count

☐ Coccidian / Oocysts Count

SEROLGY (sila isi / please fill in 1, 2, 3 & 4)

☐ Newcastle Disease Virus ELISA

☐ Infectious Bursal Disease Virus (IBD) ELISA

☐ Foot & Mouth Disease (FMD) ELISA

☒ Avian Influenza Aq Rapid Test

☐ H5 Avian Influenza Aq Rapid Test

MOLCULAR BIOLOGY

☐ H5N1 Avian Influenza PCR* (sila isi / please fill in 1, 2, 3 & 4)

☐ H7 Avian Influenza Real-Time PCR

☐ H9 Avian Influenza Real-Time PCR

☐ Animal Speciation: (sila isi / please fill in 1 & 2)

☐ O Pink*

☐ O Green*

☐ O Chicken*

☐ O Bat*

☐ O Horse*

☐ O Rabbit

☐ O Sheep*

☐ Rabies RT-PCR (sila isi / please fill in 1, 2, 3 & 4)

MICROBIOLOGY (sila isi / please fill in 1 & 2)

☐ Total aerobic count

☐ Total Coliforms count

☐ Total Coliforms count

☐ Aerobic bacterial culture

☐ Aerobic bacterial culture

☐ Environmental Monitoring

☐ Exposure

☐ Salmonella culture

☐ Salmonella enterotyping

☐ Salmonella enteritidis*

CLINICAL CHEMISTRY / HAEMATOLOGY (sila isi / please fill in 1 & 2)

☐ Urine/Clinical VSU

- ☐ Alkaline Phosphatase
- ☐ Alanine Aminotransferase
- ☐ Albumin
- ☐ Aspartate Aminotransferase
- ☐ Bile Acids
- ☐ Blood Urea Nitrogen
- ☐ Glucose
- ☐ Calcium
- ☐ Amylase
- ☐ Cholesterol
- ☐ Total Carbon Dioxide
- ☐ Creatine Kinase
- ☐ Creatinine
- ☐ Globulin
- ☐ Phosphorus
- ☐ Cholesterol
- ☐ GOT
- ☐ Total Bilirubin
- ☐ Total Protein
- ☐ Magnesium
- ☐ Potassium
- ☐ Sodium
- ☐ Thymine
- ☐ Uric Acid

☐ Complete Blood Count (CBC)

- ☐ White Blood Cell Count
- ☐ Lymphocyte % / # (L/Y%)
- ☐ Monocyte % / # (M%)
- ☐ Granulocyte % / # (G%)
- ☐ Eosinophil % / # (EO%)
- ☐ Red Blood Cell Count (RBC)
- ☐ Hematocrit (HCT)
- ☐ Mean Corpuscular Hemoglobin (MCH)
- ☐ Mean Corpuscular Hemoglobin Concentration (MCHC)
- ☐ Mean Cell Volume (MCV)
- ☐ Hemoglobin (HGB)
- ☐ Red Cell Distribution Width (RDW)
- ☐ Platelets Count (PLT)
- ☐ Mean Platelets Volume (MPV)

☐ Urine Analysis

- ☐ pH
- ☐ Leukocytes (LEU)
- ☐ Nitrite (NIT)
- ☐ Protein (PRO)
- ☐ Glucose (GLU)
- ☐ Ketones (KET)
- ☐ Urobilinogen (UBG)
- ☐ Bilirubin (BIL)

4. Keterangan Sampel / Sample Descriptions

☐ Hidup / Alive

☐ Bangkai Terkandung / Carcass

☐ Chick Box Liner / Alas Kotak Ayam

☒ Carcass / Satek*

☐ Najis / Faeces

☐ Darah / Blood

☐ Tisu / Tissues

☐ Organ / Organ

☐ Salutan Darah / Blood Smear

☐ Saluran / Litter

☐ Sampiran / Tensakan / Feed

☐ Air / Water*

☐ Tekur / Eggs

☐ Pendedahan kulit / Exposure plates

☐ Air Kencing / Urine

☐ *Sila nyatakan / Please specify

Lain-Lain Others: Cloaca swab

Tarikh & Masa kematian / Date & Time of death: N/A

Tarikh / Masa pengambilan sampel utama / Total No. of Sample Received: 1

Tarikh / Masa pengambilan / Sampel / Date / Time: 02-01-2019 @ 8:00

☐ Rpt / Rpt / pm

5. Maklumat Hewan Sampel / Animal or Sample Details

No	Spesies / Species	Baka / Breed	Rumah / Roban / Kandang / House/Shed	Identiti Hewan / Animal Identification	Jantina / Gender	Umur / Age	Jumlah Sampel / No. of Sample	Untuk kegunaan makmal sahaja / For laboratory use only / Nomor Rujukan Khas / Case Reference Number
1	Chicken	N/A	H1	1	FEMALE	34 hari	1	
2								
3								
4								
5								
6								
7								
8								
9								
10								

6. Rawatan Yang Telah Diberikan / Treatment Given

Vaksinasi / Vaccination: ☐ Ya / Yes ☒ Tidak / No

Pemberian Ubat / Medication Given: ☐ Ya / Yes ☒ Tidak / No

Jika Ya, sila nyatakan / Please state if yes: ☐ Suntikan / Spray ☐ Minuman / Drink ☐ Suntikan / Vaccination

Nyatakan jenis ubat dan waktu yang diberikan / Please state medication and vaccine given: N/A

4. Sejarah Klinikal / Clinical History

Gejala Tersebut / Presenting Complaint: 16 Ekor / Head/Neck: Kadar Kematian 2-3 hari / Mortality in 2-3 days: 5 Ekor / Head/Neck:

Sejarah Penyakit / Sickness History: 16 Mati Mengikut / Sudden Death: Sesak Nafas / Respiratory: Demam panas / Fever:

Perubahan Gejala Penyakit: Cumi-birri / Diarrhea: Kurus / Emaciation: Lumpuh / Paralysis:

*Sila nyatakan / Please specify: N/A

PENGUKURAN / DECLARATION

Saya mengukir bahawa semua keterangan di atas adalah betul / I declare that the above information is correct.

Dr. Nurul Hafizah

Tandatangan / Signature: [Signature] Tarikh / Date: 02-01-2019



6. VIDEO AND DEMONSTRATION

(10-15 minutes)



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- Video of how to extract blood from the jugular vein
- Demo of the items being used for sampling at site e.g syringe, needles and needle holder (optional), tubes, water-proof marker, alcohol swabs, gauze, tags, waste bag and disinfection kits.





7.Quiz & Task

(20 minutes)



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QUICK QUIZ!



Short quiz online

Section 1 of 2

User ID

Please fill in your details in the following questions :

Identity Card Number

Short answer text

District Team *

☐ Brunei Muara

☐ Tutong

☐ Belait

☐ Temburong

After section 1 Continue to next section

Section 2 of 2

Sampling for FMD Diagnosis

Please answer all the questions below:

Why are samples required in FMD diagnosis?

- ☐ For confirmatory disease of the particular animal
- ☐ For surveillance and monitoring of the disease
- ☐ To monitor the responses and trends of the disease towards treatment and vaccination
- ☐ All of the above

If clinical lesions are present, viral antigen can be detected in epithelium or vesicular fluid.

- ☐ True
- ☐ False

Please tick any of the clinical signs of FMD.

☐ Blisters



☐ Anaemia



☐ Salivating



☐ Mange

Practical Task

- Separate into 4 groups – each with 5 members
- Practical blood sampling at Goat farms



Task

- To carry out the process of sampling from contacting the farmer up until sending the samples to the veterinary laboratory
- To delegate the task within members e.g liaising with farmers, kit collection, blood extraction etc.

Key Messages

1. Process of collecting sampling needs to be systematic and prepared before going into site
2. To know what samples are taken in the correct manner
3. **Good quality samples = Good quality lab analysis**



Thank you for your attention!

For any inquiries:



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References

- Lesson 2.3 Sampling for Laboratory Diagnosis